APPENDIX H

Building Summary

APPENDIX H

SUMMARY OF SITE BUILDINGS

Site History Report – October 2004
Former Ingersoll Rand Company Facility
Phillipsburg, New Jersey

In an effort to develop an understanding of history and operations that were conducted in each building, ENSR conducted a file review of an estimated 5,000 large-format maps currently stored at the site. Of the 5,000 maps initially reviewed, approximately 700 were copied for further review. No other documentation was readily available, which would provide additional information related to the history and use of facility structures. It is important to note that the ENSR file review did not uncover significant documentation for several buildings and only a summary discussion could be included in this appendix.

In general, building floors are believed to be exposed concrete or covered (wood, tile, etc.) concrete. Unless otherwise noted, it is presumed that operations inside buildings were contained by concrete flooring.

H.1 Building #1

Building #1 was constructed in 1903 towards the western side of the site as a Pattern Shop to support foundry operations. The building was constructed as a two story steel frame on concrete slab with wood floors and brick masonry exterior. Heating was provided by steam and hot water lines from the plant Power House, which also generated electricity for facility use. Records indicate that a hydraulic piston elevator was present at this location.

Based on limited historical information available for this building, it appears that activities conducted at this location were limited to the construction and repair of wood patterns, which were used in the casting process. As such, activities would have been limited to woodworking and storage of miscellaneous supplies. Although unclear, ceramic pattern making may have also been conducted in this building. These activities would have continued through the 1980s when the Foundry was closed. At which time, Building #1 appears to have been used for the storage of obsolete office equipment including desks, telephones, chairs, etc. Building #1 remains standing at the site and, at the time of this writing, has been emptied and is vacant.

H.2 Building #2

Building #2 was constructed in 1903 north of Building #1 as a three-story steel frame on concrete slab with wood floors and brick masonry exterior and is one of the original buildings in the foundry area. As previously indicated, the structure underwent various additions in the 1920's and 1930's almost doubling its size. Some minor additions were also added in 1949 and 1952. Heating was provided by

steam and hot water lines from the plant Power House, which also generated electricity for the facility. Fuel oil was also supplied to Building #2, presumably to fire the core oven(s) which were likely used to bake ceramic cores prior to their use in casting.

Historical documentation indicates that its primary use was as a pattern storehouse (FIA 689, 1903; FIA 689, 1960) and was operated by the facilities Foundry Division. Facility documents reveal that the building also held offices and a ceramic mold process area for preparation of pattern cores (Map# MD3330, 1979). This would likely have included ceramic preparation areas, heating in core oven(s), and final core preparation. Based on the USEPA sector notebook for the metals casting industry (USEPA, 1998), ceramic core preparation would include the process of making a ceramic slurry and pouring it over a pattern. When hardened, the ceramic is removed from the pattern and reassembled as a mold. The volatiles are removed using a flame torch, and the remaining mold is capable of receiving and holding high temperature materials, such as metals.

Facility records indicate that two leach tanks and a rinse tank were present in the building, presumably for washing purposes. Additionally, a water-blasting area, identified in historic documentation, was present in Building #2. Water blasting is another technique used in cleaning metal products and incorporates the same concept as sand blasting, except high-pressurized water or steam is used instead of sand. A floor drain traversed the length of the building and led into the facility sewer system. It is unknown whether or not the drain is currently present.

H.3 Building #3

Building #3 was constructed in 1903 on a concrete slab with steel frame and brick exterior. It was originally used as a casting-cleaning building (Map #MD 414, 1957). Facility records also indicate that it was used for babbitting, pickling, sandblasting, and foundry operations (Map #P0003, 1943). Around 1922, Building #3 was converted into a brass and aluminum foundry, where castings were produced from molten brass. At the same time, a small wash room and locker room were added on the southwest corner of the building. By 1940-1941, a shed addition was added to the west of the building. In 1958, a 3,000-gallon oil storage tank was installed (Map #MD2254, 1975). The oil was used in the sand mixing process that took place in the foundry area; however, it was removed on February 5, 1975 (Map #MD2254, 1975). Sometime before 1975, the building was converted into a Steel Foundry. As indicated, industrial processes which occurred at this location included:

- Casting cleaning: a process by which sand, scale and excess metal are removed from a casting (Map #MD 414, 1927);
- Babbitting: a process that lines a part with an alloy of tin, antimony, or lead;
- Sand blasting: a process in which pressure is used to propel sand or aluminum oxide grit in a controlled way so that any roughness may be smoothed out (Map #MD 414, 1927);
- Pickling: chemical removal of surface oxides and other contaminants from a material by immersion in an aqueous acid. Sulfuric and Hydrochloric acids are commonly used (FIA 698, 1933); and

- Foundry: metal melting and casting operations (see Building #4).

The furnace area of Building #3 contained a water-cooling tower, a 1,000 Kva transformer and three furnaces (Map #S-030, 1975). In the sand mixing area located on the west side of the building was a 2" spill drain and a 3" black steel drain, however, no information relative to the use of these drains or where they discharged to was determined. These drains were located next to the sand silos in Building #3 (Map #MD 2948, 1975). The two sand silos in Building #3 were each 150 ton silos. Six oil tanks, all roughly the same size are located adjacent to the two sand silos. A Lectromelt electric arc furnace was located on site at the south end of Building #3. Additionally, an 18-inch deep sump was located on the north end of the steel foundry (Map #MD 2948, 1975).

Two 1-ton SO_2 (sulfur dioxide) cylinder storage tanks were located in the north lean-to of Building #3, and were likely used for the aluminum foundry in Building #3 (Map #P0003, 1948; Map #SE-081-rev2, 1980). An elevator, located between the two sand silos, was most likely used for loading operations. However, it was not determined whether it was hydraulic or mechanical. A pit and bins for scrap, pig iron, and spare storage were located on the northeast end of Building #3. Various cranes were also located throughout the building, along with a monorail system that was likely used to transport heavy materials around the building. The main room of the building contained two large ovens most likely used in the foundry process, and a waste pile was located between the two ovens (Map #MD 2948, 1975). Additionally, a sand blasting area was located on the east side of the building, south of the casting-cleaning shed. The subsurface utilities map (Map #MD 2950, 1975) indicated that there was an acetylene pipeline that entered the southeast corner of the building. According to facility records and personnel, Building #3 was decommissioned in the 1990s and remains unused.

H.4 Building #4

Building #4 was constructed in 1903 on an earthen floor with steel frame and brick exterior. A concrete slab appears to have been added at a later time; however, no facility documentation was discovered to date this modification. Building #4 is situated east of Buildings #1 and #2 in the center of northwestern quadrant of the site and was historically the largest building in the foundry area. The building was primarily used as an iron and brass foundry and included cupola and electric arc furnaces, core preparation areas with core ovens, and related operational areas. Several additions were constructed to this building through the early 1900s. Initially, an addition was constructed to the west of the structure; another was located on the northern wall of the Iron Foundry in the center of the building. On the east wall of the foundry addition there was a sand blast room, which was removed by 1933. Outside of the foundry addition on the east wall there was a fan room; to the north of this room were two sand blast areas. Westward, outside the northwest corner of the building, a chimneystack was present along with a generator building. To the northeast of the generator, a dust collector was observed. Southwest of Building #4 a small – 6' x 12' – incinerator was observed and appeared to have been added some time after 1913 and removed prior to 1960. By 1933, the dust collector had

been moved directly north of the generator building. In 1960, the foundry was extended to the south (FIA 698-B, 1960; FIA 698-C, 1960; and FIA 698-D, 1960).

A quarry was located to the south of Building #4, and an incinerator was located to the east of Building #4 (Map #MD1775, 1971); however, no scale is provided on the map to indicate the size of these features. To the northwest of these two furnaces is an oil pump and a 2" oil supply pipe that ends at an oil tank that supplies this pump (Map #MD 12563, 1927).

In 1922, a revised map of Building #4 and the surrounding areas was drawn (FIA 698-B, 1922; FIA 698-D, 1922). On the outside of Building #4 along the southeast and southwest corners there are two coal sheds (removed by 1942). After removal of the coal storage sheds, a battery room was installed on the southeast side; this installation also occurred around 1942. Located on the side of each of these sheds was a chimney.

Northward, on the east side of the building where the dry sand molding and large cores were housed, a core oven area was present. Directly to the north of this core oven was a sand shed. To the west of this shed were three Cupola stacks. These Cupolas were located on a steel deck mezzanine. There was a Cupola repair area and a sludge shoot in this area as well. To the northeast of this area was a Fire Clay bin. Also, as shown on Map #MD 2225 (1957), there are pipe arrangements for tank overflows and drains to the sump. In this area there were also two slurry pumps. No additional information is provided on the slurry pumps relative to where they discharge. The Cupola stacks generally produce numerous pollutants such as sludge, slurry's, air pollutants, and used sand (FIA 698-B, 1922; FIA 698-D, 1922).

East of the sand shed, there were approximately 15 concrete and steel bins in this area which ran the entire length of the east side of Building #4 and were bordered to the east by coke and coal storage areas. These bins were reportedly clay-lined and were used to store materials such as coal, coke, and sand for use in the foundry. A rail trestle, constructed at the top of these bins (level to ground surface toward the east) was presumable used to deliver materials to these bins.

On the east side of the raw material bins north of the coal and coke storage areas, there was a 9,800-gallon UST used for oil storage. However, no pipelines or areas of use were indicated. Another UST, possibly associated with Building #24, was also observed to be present in the 1920s.

According to Map #MD 0898 (1969) a Green Sand molding area was located on the west side of the building with a 20-ton capacity electric arc furnace located to the south. Another electric arc furnace was located in the northwest corner of Building #4.

The area to the east of the Green Sand molding area (in the center of the building) contained the dry sand molding, core up and pouring, shakeout area, and loam & pit molding area. There were large cranes that were located in the entire length of this central area. Some of the machines located in this

area were the main cranes that moved product from area to area; two 54" Swarhouts, eight Aerovent B053-485R18BD, and three 68' Davidson's (Map #MD 0898, 1969).

Another area, observed on Map #MD 2832 (1971), shows a 480 ton scrap pad with three sump pits; one in the northeast corner, one in the center, and one in the southwest corner of the pad. Two additional sumps were also located in the area along with a transformer pad containing three 75Kva and three 167 Kva transformers surrounded by a wire fence.

According to facility records, Building #4 was decommissioned in 1987 and demolished in 1988. Site reconnaissance indicates that fill was imported and placed above the former concrete pad foundation of Building #4.

H.5 Building #5

Building #5 was constructed circa 1903 east of the foundry area and west of Building #7 and is noted to be constructed on a concrete floor with wood roof. This one-story building served originally as a carpentry shop (FIA 698-A, 1905; FIA 698-A, 1913; FIA 698-D, 1922). Between 1913 and 1922 a storage shed was added to the eastern wall of the building. According to the facility records, Building #5 was converted to a cafeteria in the 1930s; however, this information could not be confirmed through other documentation. As depicted in a 1942 drawing, the building had expanded along the east wall with the addition of two small offices on its southern end, a store-room with two floor drains, and a kitchen with a floor drain which connected to the facility sewer system (Map #MD1120, 1942).

At a later date, the cafeteria was moved to Building #20 and Building #5 became a hygienist laboratory (Map #MD 3027, 1976) and that Building# 5 was renovated for office space in 1980 (Map #MD 3419, 1980; Map #MD 3468, 1980). Building #5 was demolished in 1997 with building debris from the demolition places in the New Landfill (see Appendix L).

H.6 Building #6

Building #6 was constructed in 1904 southwest of Building #5. Like many other buildings erected in the early 1900s, construction of this two to three story building was likely steel frame and brick masonry on concrete slab. Building #6 served as the primary office space for the facility since the beginning of the plant's operations and also served as an office building for employment/human resources, accounting, purchasing, and reproduction. Circa 1922, the southern portion of the basement of the building was modified to serve as the telephone exchange, where the main telephone lines entered the facility. Between 1919 and 1922, an addition appears to have been constructed which extended the building to the south. Various internal and external modifications and rearrangements occurred throughout the history of this structure culminating in the demolition of the building, with the exception of the basement, which still serves as the telephone room.

The reproduction department operated a dark room, blue print room, and a reproduction room that would have required various chemical mixtures for the development of images and blueprints. These chemicals were stored in tanks in the basement of Building #6. Facility records indicate that wastes from this process were discharged to the sanitary sewer (Map #MD 1010, 1941). According to an untitled document dated 1954, transformers were located in the basement of Building #6.

By 1987, most of the original structure was demolished leaving only the portion of the substructure that was used as a telephone room. At the time of this writing, Building #6 is present at the site as a partially razed structure and continues to house the main telephone equipment for the site.

H.7 Building #7

Building #7 was constructed between 1903 and 1905 east of Buildings #5 and #6 and originally served as the facility's shipping department. Construction appears to be steel frame on concrete with masonry exterior. Additions to Building #7 occurred through the following years: 1920, 1925, 1927, 1928, and 1929. In the 1950's or 1960's, the building's primary function appears to have changed to support compressor manufacturing operations. After divisional restructuring in the 1970's and 1980's was completed, the primary function of Building #7 became the support of pump manufacturing activities. Building #7 remains onsite and is currently being leased by Flow Serve Corporation for pump manufacturing, testing, and rebuilding operations.

Early facility and building plans reveal that this building was utilized in the final finishing and shipping of manufactured goods produced onsite. A facility plan (Map #20661, 1906) provides the specifications and location of a paint tank located in Building #7. Other items documented inside Building #7 related to the building's past operations as a shipping center include one 5,000-pound scale, one 40,000-pound scale, and a section of the building at its northwest corner where depressed railroad tracks existed for the loading and unloading of rail cars. A facility plan dated 1903 (Map # 11805) described a ventilator on the western wall of Building #7; however the 1905 Factory Insurance Association (FIA) map described the same feature as a lavatory. Building renovations in the 1940s incorporated this feature into an eastern addition.

Another feature associated with Building #7 included a basement passageway underneath the building. Although the construction of Building #7 consists of a concrete slab floor, a subsurface walkway was installed to convey people from the courtyard area east of Building #7 to locations on the western side of the building. This passageway, originally identified on the 1905 FIA map, is not known to exist onsite currently, and its date of abandonment is not known. On at least one plan, piping is known to have been run through this passageway (see Building #14).

The 1922 FIA map identifies a paint room immediately north of the basement passageway under Building #7 on its eastern (courtyard) side. A sub-floor structure described as a cylinder test pit (Map #MD557, 1929) and a service pit (Map #MD807, 1936) are also indicated to have existed. Finally, 5

transformers are identified on the roof over the courtyard entrance to the basement passageway under Building #7 (FIA 698-D, 1933).

A lubricating oil storage room was added to Building #7 at its abutment with Building #8 in the late 1940's, along with two oil storage tanks in the courtyard east of Building #7 (AOC-15) (Map #MD1417, 1947). In the 1960's, the paint room was fitted with paint spray exhaust chambers and an exhaust vent to the outside of Building #7 in the courtyard to its east (Map #MD2565, 1964).

Pump testing equipment consisting of oil interceptors, sumps, trench drains, and tanks were installed in Building #7 in the late 1980's. Additionally, a possible metallurgical facility with a recessed floor and a drill pit were also present. Finally, the north end of Building #7 has a floor pit utilized for pump testing associated with the facility's Navy test area.

Currently, portions of the building are in use by Flow Serve for the fabrication and testing of pumps and related equipment. Portions of the building require security clearance to enter. Flow Serve also operates several offices along the west side of Building #7.

H.8 Building #8

Building #8 was constructed in 1904 as a one-story Compressor Erecting Shop connected to the southeast corner of Building #7 extending to the east. Construction was steel frame on concrete with masonry exterior. Based on a review of the maps provided, this building has been utilized for compressor erecting and testing since at least 1904 and remains on site. Based on the review of available maps, other operations conducted in this building include forging and possibly oil reclamation. The 1904 site map identifies several testing pit areas (Map #12749, 1904) which appear to be used as testing areas for compressors. According to a 1927 map, the west end of Building #8 appears to be utilized for erecting, including but not limited to the following machinery and areas: erecting pits-turbo, floor compressors, erecting floor for oil engines, shipping department, tool room, and turbo storeroom (un-numbered drawings, dated 5-18-1927). The 1927 map also identified the eastern end of Building #8 to be utilized by the Forging Department with cranes, forges, steam press, coolers and tracks to move equipment. Upon a later addition, this portion of the building is later identified as Building #25. Addition 8-D, identified as a garage, was added to the northwest corner of Building #8, at the southeastern corner of Building #7 in 1933 (FIA 698-A, 1933). In 1960, addition 8-G was present at the northeast corner of Building #8 and was identified as an experimental test lab (FIA 698-D, 1960). In addition, an oil reclamation room was added to the northwest corner where the garage was located on the 1927 map.

An inspection of pits located in the northeastern end of the Compressor complex, alternately referred to as Building #8 or Building #25, and is discussed in section H.25.

Currently, Building #8 is leased by Flow Serve for the assembly, and test of pumps and related equipment.

H.9 Building #9

Building #9 was constructed in 1904 similarly to Building #8 extending perpendicular to its southern wall and is now present between Buildings #10 and #11, which also extend southward from Building #8. Based on facility records, the building was used as a machine shop to support compressor manufacturing for much of the facility's history. Facility drawings show the presence of a variety of machines including planers (Map # 12767, 1904). Circa 1915, Building #9 was extended approximately 200 feet southward. By 1933, Building #9-A was added to the south end and the Babbitt Room (#9-D) was added to the southeastern end of the building. Facility records also indicate that the southern portion of this building was constructed on cinder fill. By 1927, Building #9 included manufacturing offices, a repair room, grinders, boring machines, planers, and milling machines, as well as a tool room to the east and an area of lathes. At the southern end of the building, three sets of tracks and crane runways are present. Additional machines identified in Building #9 included drill presses, a Key Seater, and a vertical mill. In 1992, two oil tanks (5,000-gallon and 2,500-gallon) appeared adjacent to the east side of the building, as well as a waste coolant disposal and a chip discharge area south of the building. Documents from the 1990s indicate that the building still contained lathes, drill presses, a magnetic particle machine, grinders, cranes, a stress relieve furnace, and a welding area. Transformers were identified in the northern portion of the building.

Several pits were observed in Building #9 and may have been associated with machine foundations. ENSR conducted an inspection of nine pits in Building #9 in July 2003. These pits were either lined with cinder blocks or concrete and were in good structural condition. Four of the pits had light staining. All have since been filled and re-surfaced to match surrounding elevation. Currently, Building #9 is vacant.

H.10 Building #10

Building #10 is located east of and parallel to Building #9 extending from the eastern end of Building #8. This structure was built in 1904 similarly to Buildings #8 and #9 with steel frame and concrete slab floor. For much of the site's operational history, this building was used as an assembly and machine shop to support compressor manufacturing operations. Facility records indicate the historic presence of machines such as borers, vertical borers, radial saws, grinders, planer machines, radial drills, shapers, and lathes (Map # 12772, 1904). Railroad tracks were documented to be present entering the structure from the south side and parallel to the building between Buildings #9 and #10 (FIA 698A, 1905). In 1915, a turbo-test pit extension was proposed (Map # Drawing 49221, 1915 – rev.1916). By 1927, the north end included a jigs and fixtures storehouse and turbo store room and the south end included tracks for cranes to move equipment and parts (Map #DRG 5-16-1927, 1927; and Map # DRG 5-18-27, 1927). In 1940, a plan was prepared for an Extension to the Pit West Lean-To #10

Shop (Map #MD 972, 1940). By 1952, new storage bins were located at the southeast corner of the compressor assembly area, and an extension to the crane runway was added. In the 1990s, maps identified Building #10 as containing the Navy store room in the northeastern portion of the building and a store room and receiving area at the south end. An oil spray booth was also identified on the east wall. The northern portion of the building included shipping, rollers, cutters, scales, saws, and planers.

Several pits were observed in Building #10 and may have been associated with machine foundations and/or testing pits. ENSR conducted an inspection of twenty-three concrete-lined pits in July 2003. At the time of the inspection the pits were observed to be in good condition. Minor staining was observed at most of the pit locations however, all appeared to be structurally intact. All pits in Building #10 have since been filled and re-surfaced to match surrounding elevation. Currently, Building #10 is vacant.

H.11 Building #11

Originally, Building #11 was identified as the engine house portion of Building #12 – the Power House. In the 1940s, this building was renamed Building #12E. Details regarding the construction and operations in the Power House are discussed in section H.12.

Circa 1945, the current Building #11 was constructed west of Building #9 extending southward from the western side of Building #8 (Map #DRG 5-28-47, 1947). By 1947, Building #11 was operating as a new shop for compressor assembly and testing, oil engine assembly and testing, and painting. Uses identified in 1947 included a run and test area, engine assembly area, painting areas, and muffler area. Two rail lines entered the south side of Building #11. For much of the operational history of Building #11, it was used for compressor assembly and storage. Main components of this building included four Jib cranes, a drill press, milling machines, floor borers, a radial drill press, a planer, a grinder, a welding area, an oxygraph and table, an engine lathe, an oven, and a vertical boring mill, and several compressor test pits. A map from the 1990s identifies Building #11 as containing a parts cleaning area, dust collector, heat-treat furnace, oil barrel rack and oil supply rack, and a sonic stripper. According to a 1974 map, a fenced transformer pad area was present just south of the Building #11 washroom between the Building #9 lean-to and Building #11. In addition, a kerosene tank was also located in this area. A map for the Phillipsburg Plant (not dated), identified a mixed gas compressor skid located outside along the eastern side of the building, near the northeast corner with Building #8. In addition, a mixer building, vaporizer, two storage tanks, and a truck unloading station were identified south of Building #11 on the other side of the roadway; however, their uses and dates of uses are not known.

Several pits were observed in Building #10 and may have been associated with machine foundations and/or testing pits. ENSR conducted an inspection of eighteen pits. Pits were constructed of concrete or cinder block and were found to be in good condition, though most of them had light staining, minor cracking, or paint chipping. In one pit there was evidence of a staining and a slight sheen, which was

removed by IR personnel. All pits in Building #11 have since been filled and re-surfaced to match surrounding elevation. Currently, Building #11 is vacant.

H.12 Building #12

Building #12 was constructed in 1905 as a Boiler House/Powerhouse. As depicted in the 1905 FIA maps, the plant contained a 1,000-gallon Worthington Underwriter Pump along with stoker pits located under the building. These maps also indicated that the building was considered fire resistant. Around 1925, there was an addition to the boiler house. According to the 1960 FIA map, Building #12 contained five sections. These sections consisted of the Engine House, the Boiler House, the Pump House, the Coal Shed and the Conveyor House. At this time the map depicted seven-700 hp, oil-fired heaters in operation. In addition, 2 underground storage tanks containing diesel fuel near the building with the capacity of 1,000 gallons and 10,000 gallons were present in the 1960 FIA map.

Building #12 contained two operating boilers, a sulfate pump, a phosphate pump, a chemical pump and a storage tank in 1958 (Map #MD 2264, 1983). In 1962, there were 4 active boilers in Building #12 (Map #MD 2506, 1962). By 1979, the Cutting Oil Process Unit was working out of Building #12. At that time there was a 2,000-gallon process tank (AOC-24) and a 5,000-gallon storage tank located in the basement (AOC-20). In addition, a drainage system was located near the Demineralizer. The sanitary drain was located underneath the pump.

The Buildings in the Complex

The Power House is one of the original building complexes on the Phillipsburg site, and initially consisted of a central stack and two separate but abutting buildings – the Boiler House (#12) and the Engine House (#11). Alternate names occur frequently for the two buildings, especially on general site maps. The Boiler House has been consistently named Building #12. The Engine House was originally labeled Building #11, though in the 1940s the name was changed to Building #12E. A one-story Pump House, which was located on the eastern wall of the Boiler House just north of the Engine House. The Pump House housed water pumps, which brought water from the Reservoir (later Spray Pond) to the compressors and boilers. At its southwest corner a subway connected the Engine House to other facility Buildings.

According to the 1913 FIA Plan (FIA 698-B, 1913), two lean-tos were added to the main buildings. A one-story “Service Pump House” was located on the northern wall of the Boiler House; in a parallel location on the southern wall of the Engine House was a similarly small, one-story lean-to marked “Steel Experimental Building”. No documentation was uncovered during the file review to confirm the processes that occurred within these buildings. By 1917, it appears that a Package Boiler was installed northeast of the Conveyor House with its own stack (Map #MD 2347, 1958).

By 1922, the two lean-tos had disappeared, and a new addition was built against the northern length of Building #12. This addition was one story and was made thirty feet shorter than the length of the other major buildings of the complex. Railroad tracks entered the northeast corner of Building #12 and its new addition and appear to have been present for coal delivery and ash removal. A smaller two-story addition was made at the northwest corner of the original Building #12 and was identified as the "Conveyor House" (FIA 698C, 1922).

The FIA Plan for 1933 introduced a new naming system using letters to describe additions. The large addition that had been built on the northern wall of Building #12 was called Building #12A. A new structure projected from the northeastern end of Building #12A, enclosing a section of the railroad tracks within the new structure. This building was labeled "Coal Shed" and was assigned the name "12B", and the Conveyor House became Building #12C. Along the central part of the western wall of Building #12 a lavatory was installed in a one-story lean-to. The existing subway was further extended to the southern walls of Buildings #12 and #11.

A group of six transformers surrounded by wire fence was identified outside the southeastern area of Building #12 (formerly #11) on 1933 FIA maps (FIA 698-B, 1933), replacing the two barometric condensers that had been located there (Map #11179, 1919). This area was previously identified in earlier reports as AOC-1 (Transformers East of Bldg. #12).

By 1960 two diesel oil underground storage tanks (USTs) are marked in the general vicinity of the Power House: one 1,000 gallon tank about 25 feet west of Building #12D (AOC-35) and one 10,000 gallon tank about 57 feet west of Building #12D (AOC-9); a 12 by 29 foot addition was added to Building #12B; the lavatory lean-to of 1933 had been removed and replaced with another lavatory at the northwestern corner of Building #12A; and three transformers were present on the roof of this lean-to (FIA 698-D, 1960).

After 1960, the complex underwent few major structural changes. The central stack was dismantled some time after 1962. This conclusion is based on a note written on a plan stated in Map #MD 2506 (1962) and the absence of the stack on accessible subsequent equipment layouts. It was replaced at a later unknown date with a smaller steel stack as shown on more recent aerial photographs. In addition, by 1977, Building #12B (the former Coal Shed) was used to contain caustic and acid storage tanks in a new southern extension. As oil-water separator was also identified to be present in the northwestern corner of Building #12 (Map #3412-2, 1980).

Facility documents reveal that a lab was located on an upper floor of Building #12 (Map #3599, 1982; Map #MD 3870, 1997); however, it is unclear what type of operations were conducted.

From at least the mid-1980s through the present, hazardous waste generated at the main facility was stored in a diked hazardous waste storage shed (AOC-27) located east of the Powerhouse (Kadwell (Tellus), 1986). Wastes were generally stored in 55-gallon drums on secondary containment pads.

The shed is still in use, and is permitted and inspected weekly per RCRA and DPCC requirements (ENSR, 1994).

Power House Operations - Fuel

For most of its history the Power House complex used coal to fire its boilers. Later in its history, it used No. 2 and/or No. 6 Fuel Oil. In addition, there is documentation that a gas line may have been installed (Map #MD 3430, 1980).

The Power House complex used both indoor and outdoor areas to store coal. Coal was transported by rail from the large coal trestle at the eastern end of the site. It appears that coal was delivered to the northeast corner of Building #12 (or Building #12A) by railcar and dropped into a coal hopper, which dispensed coal to a crusher. After the coal was crushed, a belt conveyor likely carried crushed coal to bins suspended over the boilers.

It appears that three crusher pits existed outside of Building #12. The first was located along the eastern part of the northern wall of Building #12. This is labeled the "Old Crusher pit" in a drawing from 1919 (Map # 110407, 1919). The "new" and only other pit that is represented on the drawing was located northeast of Building #12, but below the same tracks as the previous pit. It appears that it was connected to the Conveyor House (Map # 110407, 1919). This has been labeled Crusher Pit #2. Another later document from 1919 shows an underground coal hopper where the "new" crusher pit was located in #110407 (Map # 111179, 1919). In this document another coal crusher area is labeled within the Conveyor House along the eastern wall of the original Building #12. A recurrent symbol for the depiction of a pit is drawn in, though it is not labeled either a crusher or a pit explicitly. Leading toward this area is another set of tracks, running north to south, parallel to the eastern wall of the Power House complex. An ash chute also runs from the coal crusher/conveyor area to this set of tracks. Unfortunately, no later documentation was found to confirm whether the latter layout was the final arrangement for the crushers.

Bulk storage tanks (#43, #79, and #100) were present in the eastern portion of the facility to supply the powerhouse with No. 2 and No. 6 fuel oil. These tanks were installed at various times throughout facility history to keep up with the facility's growing need for fuel oil. The Bulk ASTs were connected via underground piping to three 10,000 gallon storage tanks (#104) and to Building #12 to supply the boilers. In the 1980s the underground piping (AOC-38) was abandoned and replaced with above ground piping.

In the 1990s the powerhouse was decommissioned and the fuel oil tanks were emptied. Since that time, no fuel has been stored on site for Power House consumption.

Power House Operations - Steam Production

According to the 1905 and 1913 FIA plans, the original building contained eight horizontal boilers. The original boilers appear to have been eight 250 horsepower (HP) stirling boilers (Map # 11861, 1903

rev. 1916). The basement level of the Boiler House contained stoker pits, which housed the stoker mechanisms (FIA 698-A, 1922). These mechanisms were equipped with a motor and fans to provide the boilers with crushed coal and air for combustion. As depicted in a drawing from 1919, the pits for the boilers were 12.5 feet deep (Map # 111179, 1919). Early layouts indicate that boilers were paired, and each unit shared equipment that would improve boiler efficiency, such as economizers and breechings. Exhaust was emitted from the central stack (Map # 11861, 1903). By 1914, two additional boilers (500 HP) had been added.

The number of boilers varied widely during the history of the complex. Between 1914 and 1922, the Building #12A addition was built on the northern wall of the original Building #12 (FIA 698C, 1922). Building #12A contained eight horizontal boilers, while the original Building #12 housed ten horizontal boilers for a total of eighteen boilers (Map # 110407, 1919; Map # 111179, 1919; FIA 698-C, 1922; FIA 698C, 1922 rev.1926). By 1933, only six boilers remained, all located in Building #12A (FIA 698, 1933). There were two 700 HP and four 600 HP boilers. Building #12 housed an oil-fired Enco Superheater. It is likely the superheater replaced the three heaters that had been lined up against the wall with Building #11 (Map # 111179, 1919). Two new boilers were depicted inside the Power House on the same 1958 drawing and are located in the most eastern area of Building #12A, and had a capacity of 75,000 pounds per hour and have related installation plans (Map #MD 2347, 1958). The 1960 FIA plan depicts the same number and types of boilers as 1933, however, does not depict the Package Boiler. Therefore, it is not known whether these boiler improvements were completed. The last layout drawings available, dated 1982 and 1997, depicted four boilers in Building #12A.

According to the 1933 FIA plan, the floors, roof, and floor of the basement were constructed of concrete. Equipment for the boilers, such as overhead economizers, breechings and heaters, were also present. Pumps were also used, and are presumed to have been for feeding water to the boilers due to their proximity to the pump house.

By 1917, it appears that an auxiliary package boiler existed to the northeast of the Conveyor House (un-numbered map, 1917: Map of Tracks and Buildings). The installation date of this auxiliary boiler is unknown. None of the FIA plans show this exterior boiler, including the only available FIA plan postdating Map #MD 2347 (1958). Another document gives the name “Auxiliary Boiler” to a 14 foot square area in the same general location directly to the east of Building #12 and the Conveyor House, but the date is uncertain (un-numbered map, 1904, rev. 1950: Phillipsburg Plant of Ingersoll-Sergeant Drill Co.). A review of aerial photographs available for the site shows structures in this general area. As indicated in a photograph dated May 29, 1957, it appears that one rectangular and one round structure are located on a concrete pad behind the Conveyor House. No documentation relative to these two structures was discovered in this area; therefore, the identity of these structures cannot be definitively attributed to the auxiliary boiler.

The main waste products produced by boilers are: (a) air emissions of particulates and gases, (2) ash and slag and (3) boiler blowdown. The Power House had a variety of mechanisms to address the disposal or removal of these wastes. Ash was reportedly disposed of in the landfill, boiler blowdown was discharged to the Spray Pond, and air filters were used to capture particulates.

During the history of the Power House, between one and seven stacks and main vents are documented on the roofs of Buildings #12, #12A and the Engine House (Map #MD 2691, 1973). Associated equipment included fans, blast pipes and machines used to clean air, such as air filters. After 1933, air filters were located in the northwest corner of the Engine House (FIA 698, 1933; Map #MD 2506, 1962; Map #MD3207, 1977).

Bottom ash and slag from the boilers dropped into ash chutes in the basement. The ash was carried via a bucket conveyor to a suspended ash silo in Building #12. Based on facility records, the silo appears to have been emptied into rail cars, which carried the ash to the landfill for disposal (Map # 111179, 1919; Map # 111180, 1919).

Since the beginning of operations at the Power House, a special blowdown discharge system existed that carried Power House blowdown to an external catch basin (Map # 12622, 1903). By 1975 boiler blowdown was transported via underground piping to the Spray Pond (Map #MD P22, 1975).

Power House Operations - Electrical Generation

According to the earliest documents, the southern portion of Building #12 (Engine House; formerly Building #11) contained equipment used for power generation, such as generators, compressors, switch equipment and condensers (Map # 11861, 1903 rev. 1916). Early layouts indicate that the Engine House contained 4 to 5 300-KW generators, 1 750-KW generator, two underground Conover condensers and six pumps (Map #48529, 1914; Map #MD 177, 1923). A hot well, suction well and air receiver are depicted in a 1919 drawing (Map #111179, 1919). Drawings from 1919 and 1923 also indicates that the Engine House contained air compressors, water feed pumps and heat system pumps (Map #110407, 1919; Map #111179, 1919; Map #MD 177, 1923) and a 10 ton crane (Map #111179, 1919). An oil-fired superheater was also located in the Engine House (Map #MD 782, 1936). A later drawing shows transformers inside that building (Map #MD 3207, 1977).

Since the beginning of operations, pumps have supplied water from the Reservoir (later Spray Pond) to the condensers (FIA 698-A, 1905) which are a turbine auxiliary. Two barometric condensers were situated outside at the southeastern area of the Engine House (Map #111179, 1919). These tower-like condensers used steam and cooling water from the top, and steam condensate discharged at the bottom. The two condensers inside the Engine House also had a well of unknown depth between them (Map #48529, 1914).

By 1933, a six-unit transformer were fenced-in this area (AOC-1), replacing the condensers (FIA 698, 1933; FIA 698-D.60.1, 1960). Electrical conduits extended from the east end of Building #12 to a series of three pits. No further detail is available regarding these pits, including if they were used for any other utilities (Map #MD 3409, 1980). Electricity was distributed from the Power House via underground transmission lines in the subway as well as above ground wires to other facility buildings. In the 1940s, the facility connected to outside power sources and moved the main transformer yard north of the Spray Pond, where it remains today.

Power House Operations - Other Systems

Though the Cameron Division also had a Power House, the Power House complex was the main producer and provider of electricity for most of the Phillipsburg site. In addition, the complex supplied high-pressure steam to many facility buildings during its history of operations, necessitating a system of steam and condensate return piping, as well as elaborate water cooling and conditioning mechanisms.

By 1936, the Power House provided steam to other parts of the Ingersoll Rand site. Steam pipes led from the Power House to the forge shop, compressor department and compressor test area (Map #MD 782, 1936). Condensate was also returned through a separate system for reuse (Map #MD 3224, 1973). Condensate return was filtered and presumably discharge to the Spray Pond (Map #17465, 1905).

Boiler feed water was softened through the use of water softeners, brine, decarbonizers, acids and bases. Wastes deriving from this process were neutralized and discharged. According to facility documentation feed water also underwent de-aeration using sulfites to combat oxygen corrosion (Map #MD 2347, 1956). Wastewater and condensate were treated in the Power House complex with the use of oil-water separators and ultrafilters. The ultrafilter (AOC-28) also processed waste from other divisions and discharged treated water to either the Spray Pond or facility sewer. Non aqueous phase liquids were collected for disposal.

H.13 Building #13

FIA maps indicate that Building #13 was constructed between 1903 and 1905 and originally served as the facility's forge and blacksmith area. It is located between the facility powerhouse (Building #12) and Building #17 and was constructed with a steel frame on concrete slab and masonry exterior. Furnaces were located at the southern end of the structure. By 1913, the building was extended to the east nearly doubling its size. Further additions were made in the 1920s extending the building to the north, east, and south. According to facility records, this building has housed operations associated with forging, blacksmithing, heat treating, turbo compressor manufacture, and pump testing.

At the time of its construction, Building #13 housed various machines in support of its primary function of that time, forging activities. These included furnaces, drops, hammers, a heater, and a die store room (Map #16628, 1905). A scrap bin northeast of this building also existed to support its activities (FIA 698A, 1905).

At the northeastern corner of Building #13, the facility's original fuel oil storage and pumping location was present. Furthermore, this is the original location of Building #18 (Oil House), which was moved to its current location in 1918. The original facility layout contained one 10,000-galon fuel oil UST in this

area. The oil pumps distributed this fuel oil from the UST 300 feet east of the original Building #13 to Buildings #13 and #14 and presumably other locations via piping. Building #13 used this fuel oil in 6 oil furnaces located along its southern wall, which were supplied via a 1" diameter supply line under the floor of the building (Map # 17479, 1905).

Six septic tanks were located southeast of Building #13. These septic tanks were encountered during an investigation of fuel oil pumping in the 1990's and were removed, according to the 1995 report titled *Status of Remedial Investigation/Remedial Action on the Buried and Abandoned No. 2 and No. 6 Fuel Oil Lines* prepared by Tellus Consultants.

By 1911, Forge shop operations had been upgraded to include the use of forges, a Bradley trip hammer, headers, a hot saw, a grind stone, presses, and emery wheels (Map #A-9407, 1911). The facility's oil storage and pumping capabilities had also been upgraded. The original 10,000-gallon UST was replaced with two 8,000-gallon USTs (FIA 698-A, 1913). These tanks were identified in the 1994 *Draft RIWP* as AOC-7 and were abandoned in place in 1996 as reported in the October 1996 *UST Closure Report* (note that three tanks were identified and abandoned during these investigation). In 1913 and 1919, Building #13 was expanded to the east, approximately doubling in size from its original construction.

No facility records were available to document activities at Building #13 from 1919 until 1945, with the exception of one document which notes the location of a 200-gallon oil tank inside Building #13 (Map #MD 411, 1927). In 1945, three 10,500-gallon USTs appear on Map #MD 1351 (1945) at the northeast corner of Building #13 and appear to be the same tanks as previously mentioned. However, comparisons of the FIA and facility maps show these tanks in slightly different locations.

In 1950, equipment present in Building #13 included furnaces, dies, the Bradley trip hammer, headers, mills, trimmers, presses, grinders, a stamping machine, a bending machine, a sharpener, a saw, a planer, lathes, and a scale. Storage areas for oil and steel were present as well (Map # FD10658-F, 1950). Facility drawing Map # MD 1960 (May 13, 1953) depicts plans for the construction of scrap metal bins immediately east of Building #13. Plans for the bins project their location to be adjacent to facility fire hydrant #32. It is likely these are the scrap bins depicted on the 1960 FIA map on the concrete apron immediately east of Building #13.

According to facility records, Building #13 appears to have added heat treating operations between 1950 and 1966. Inventory of equipment found in Building #13 in 1966 includes 4 transformers, a furnace, a brine tank, and a magnetic contactor (Map # MD 2657, 1966).

Operations at Building #13 changed again sometime between 1966 and 1974, when heat treating operations were moved to the western quarter and the eastern portion of the building was identified for support of the turbo/compressor division. It is not known what activities, if any, the turbo/compressor division conducted in Building #13, however plan Map # MD 2905 (1974) identifies 27 separate vents

and/or stacks on the eastern portion of Building #13's roof which the turbo division either capped or proposed to cap. Functions of these vents are unknown, but likely related to the former smithing and heat treating activities conducted at the building.

Map # MD 3520 (1981) indicates that an oil and coolant room may have existed at that time as well. The purposes of this room in Building #13 are not known.

In 1984, the Pump Division set up a test and assembly facility in the western quarter of Building #13. This equipment used two tanks (3,200-gallon and 19,100 gallon), and a floor drain system. The two tanks were housed in sub-floor concrete-lined pits with sumps (Map # MD 3809, 1985). An inspection of these drains and pits took place in August 2003, and were part of a larger inspection of two pits, eight recessed equipment bases and a related trench drain system, a trench intersecting a pit, and a shallow hole in the floor. These structures were made of concrete or cinder blocks, had some light staining on the concrete lining, but were generally in good condition at the time of the inspection. Two additional sub-floor pits and one tank are known to exist inside Building #13, although they did not appear on any of the reviewed documents. Additionally, a short subway bearing steam pipes is known to connect Building #13 with Building #12, although this did not appear on any of the reviewed drawings. These trench drains and pits were inspected, documented, filled, and capped with concrete in 2003. An internal report was generated for IR documenting inspections at each pit location. This report can be forwarded to NJDEP at its discretion.

After IR sold its pump business to Flow Serve, operations at Building #13 were moved and Building #13 now remains onsite and is vacant.

H.14 Building #14

Building #14 was constructed around 1905 and served as the facility's primary heat treating department and has been identified as AOC-10 in the 1994 ***Draft RIWP***. It was located in the facility courtyard north of Building #8, east of Building #7, south of Building #15, and east of Building #13. Facility documents indicate that operations conducted at this location included tempering and heat treating, sand blasting, and metal plating. After facility restructuring in the 1970's and 1980's was completed, IR discontinued the practice of casting metal parts onsite, and the divisions that Building #14 appears to have supported left the site. In 1989, the building was demolished.

A building layout plan from 1903 indicates that the original equipment in Building #14 consisted of various forges and furnaces, a hammer, a soda tank, straightening presses, brine tanks, and quenching oil tanks (Map # 3121, 1903). During this early phase of the building's history, gasoline lines supplied fuel to the building from a 1,000-gallon gasoline storage tank located southwest of Building #7. The gasoline tank was identified in the 1994 Draft RIWP as AOC-13 is reported to have been a 500-gallon gasoline tank. Although it is suspected that these tanks are the same. Gasoline was brought to the building from the UST by underground piping that was routed through the

basement passageway under Building #7. In 1905, the gasoline piping ran easterly through the passageway and through a gasoline "generator" en route to Building #14 (Tellus, 1994; Map # 12739, 1905). In 1907, gasoline ran from the 1,000-gallon UST to a "Maxum" gas machine, which is indicated to be a replacement of the 1905 "gasoline generator". In the 1907 fuel line configuration, the gasoline line was also routed through two service tanks located south of the southwest corner of Building #14 (Map # #22869, 1907).

In addition to gasoline, the building utilized fuel oil supplied by pipe from Building #13 and coal, stored in bins on the eastern side of the building for fuel.

According to the 1922 FIA map, the south end of Building #14 was expanded with a cooling shed. Two 10,000-gallon USTs appear to have been installed under the cooling shed to provide quench oil to the building. These USTs were identified in the 1994 Draft RIWP as AOC-12 and investigations in that area are detailed in Appendix E. West of the cooling shed, an acetylene house was present and appears to have been a storage location for acetylene.

In 1924, building equipment included various furnaces and forges, brine quenching tanks, oil quenching tanks, a steam hammer, a soda tank, a fresh water quenching tank, a straightening machine, a brine cistern, and a centering machine (Map # 91675A, 1924). Later maps indicate that this area was utilized for degreasing, chromium plating, and Parkerizing (Map #MD 1413, 1947 and Map #MD 1827, 1951).

The 1933 FIA map indicates that the northeast corner of Building #14 was used for acid etching operations. This area is later used in the 1940's and later as a plating area where copper plating and cadmium plating were conducted (Map # MD 1413, 1947).

Additional equipment depicted in Building #14 in 1946 included a brine reservoir (possibly below the floor level) and two transformers (Untitled and undated document, 10/8/46). Floor drains are known to have existed in the building in the 1950's, but details concerning their configuration or specifications were not available (Map #MD 2090, 1955).

The 1960 FIA map also shows a 500-gallon benzene tank (previously identified in the 1994 ***Draft RIWP*** as AOC- 14) immediately north of Building #14. Electrical plans dated 7/30/74 identify one 10,000-gallon Methanol UST (previously identified in the 1994 ***Draft RIWP*** as AOC-11) south of Building #14, a nitrogen generator in the courtyard against Building #7 near Building #14's southern lean-to, and a cooling pit below the cooling shed, possibly between the previously mentioned quench oil USTs. No plans were available to document changes to this building and its surrounding area prior to its demolition in 1989.

After demolition, IR conducted investigative activities in the former area of Building #14 as Area of Concern #10. Details of the investigation are presented in Appendix E.

H.15 Building #15

Building #15 was constructed around 1905 north of Building #14 and originally served as the facility's drill testing building to support drill manufacturing activities being conducted in Building #17 which was located to the its north. Based on FIA maps, several smaller buildings and sheds were associated with and located adjacent to Building #15. These included a cylinder building and blowing testing building which were incorporated into Building #15, a drill shed located west of Building #15. In the late 1920s the drill shed was removed and the blowing testing building was re-tasked as an oil-mixing house. By 1933 the northern extensions of Building #15 were identified as a southern extension of Building #17 (#17E) and the original Building #15 was identified as an acetylene welding room. By 1960, FIA maps (FIA 698-D, 1960) indicated that chrome plating activities were being conducted in Building #15. According to facility records, the building was vacated and decommissioned by 1987 and demolished in 1989.

Facility records also indicate that Building #15 received three overhead oil pipes from Building #17 through the center of its northern wall Map # MD 411 (1927); it remains unclear for what the pipes were used. Map #MD 728 (1935) identifies a tank of unidentified contents inside Building #15 on its western wall. Map # MD 1410 (1949) indicates that Building #15 contained an electric furnace, rectifiers, chromium plating tanks with vents, a wash tank, an alkali tank, and a degreaser. Drawing Map # MD 3028 (1976) indicates that Building #15 was the site of copper plating moved from Building #14 as well as degreasing and Parkerizing operations. It also contained an irregular pit, and contained approximately 25 feet of floor drains. Finally, the building was the proposed site for shot peening in 1980 (Map #MD 3481, 1980); but no documentation of this use was available.

As previously indicated the building was vacated in 1987 and demolished in 1989. Investigations were conducted in the vicinity of Building #15 under AOCs-10 and -14. Details regarding these investigations are included in Appendix E.

Building #15 was reconstructed in the same location around 1990 and remains onsite and is possibly associated with Flow Serve's operations.

H.16 Building #16

Building #16 was constructed in 1905 with a steel frame on concrete with masonry exterior and was located east of Building #15, north of Building #13, and connected to the south side of Building #17. An office, shear room, and machine shop (later identified as Building #19) were present south of Building #16 and connected this building with Building #13. In the 1920s two scrap bins and possibly and incinerator (Sanborn, 1925) were located east of Building #16.

Limited data sources were available for Building #16. The 1905, 1913 and 1922 FIA maps indicate Building #16 was originally used as a warehouse. The 1960 FIA map indicates Building #16 was used for wagon drill assembly.

One map from 1934 shows very little detail about what was inside the building, however it shows there was a laundry area on one side of the building, and on the opposite side was a depressed track that led into the lean-to area of the building (Map #MD 692, 1934). Two 10,000-gallon oil tanks and one 1,000-gallon oil tank were located off of the northeast end of Building #16. Map #MD 396 (1921, rev. 1947) depicts possible fill pipes from the railroad tracks near the building. Based on this information it is possible that rail cars were used to transport oil and unloaded it into tanks in the vicinity of the building. A quarrymaster shop office was built around 1957 (Map #MD 2200, 1957). Another map shows that there was a rock drill test area east of Building #16 (Map #MD 2496, 1961).

Five sub-floor structures (four pits and a recessed trench connecting the three deep pits) were inspected inside Building #16 in April 2003. Two pits (twenty and forty feet deep) are lined with metal plates and have a cement bottom. These pits showed evidence of minor corrosion and contained rain water, but were in good condition. The other subsurface structures were found to be in good condition, and included: a pit with a depth of twenty feet, metal-plate lining, and concrete flooring; a shallower pit (10 feet deep) with concrete sides; and a trench connecting two of the deep pits. A sump and well-like structure were identified in late 2003 and investigated as AOC-45. Details of the investigation are included in Appendix E.

Currently, the building is being leased to Stateline fabricators for use as a structural steel assembly location for offsite use. A review of Stateline's operations and regulatory impacts was conducted prior to the initiation of their operations at the site and presented in a 2003 Memorandum to IR.

H.17 Building #17

Building #17 was constructed around 1905 and served as the facility's center of drill manufacturing for the operational history of the building. This 260'x475' building was located north of Buildings #15 and #16 and was constructed of steel frame on a concrete foundation with masonry exterior. The 1994 *Draft RIWP* identified this former structure as AOC-16.

The 1905 FIA map identifies Building #17 as drill manufacturing and identifies a shaving and scrap shed to its east supporting drill manufacturing activities. The 1913 FIA map identifies the same structures, with a major expansion of the original Building #17 to the north and east increasing its overall dimensions to 320'x525'. The 1913 FIA map also identifies a pickling shed to the building's east (later identified as Building #61 and #V) and a stable to the building's northwest. Building #17 was divided into the following sections in 1920; finished stores, raw stores, cutting off machines, assembly section, welding room, vise section, casting section, drill press section, milling section, grinding section, lathe section, monitor section, automatic section, tin smith, tool room, and store room

(Map # T36941, revised 1920). The tool room contained milling machines, lathes, planers, sharpening machines, grinders, drill presses, presses, and shot blast area (Map # T36942, 1919). A [caustic] soda tank, a sand blast unit, and a mill and dust arrestor were located along the southern wall of Building #17 (Map # T36943, 1919). Structures supporting drill manufacture to the east of Building #17 at this time included a millwright area occupying the northern end of the pickling shed, a structure identified as a "high-power gasoline pit", a piston testing building, and a gas generating house (assumed to be acetylene generator – Building #57) (Map # T36941, revised 1920).

Other historical structures associated with Building #17 dating from around this time include an incinerator location (identified in the 1994 *Draft RIWP* as AOC-33), a scale (Building #45), and a gun club north and northeast of Building #17, another incinerator east of Building #17, and 3 cesspools south of the building.

The 1933 facility documents identify two USTs east of Building #17; one UST was located east of the chip storage pad and was labeled "Cutting Oil House UST" and the other UST was located about ten feet east of Building #17 labeled "Carbide Waste Tank". Map #MD 396 (rev. 1941) as well as period FIA maps show three USTs protruding into a vault abutting the southeastern corner of Building #17. One of the three USTs was 1,000 gallons in capacity and contained lube oil. The remaining two tanks were 10,000 gallons in capacity, containing paraffin and kerosene respectively (FIA 698-B, 1933; and FIA 698-E, 1960). These tanks supplied Building #17 and #15 through overhead piping using an oil pump located in the UST vault. A later drawing (Map #MD 2828, 1971) also shows a barrel drain pit inside the UST vault. Map #MD 2078 (1954) depicts four ASTs containing cleaning, de-rusting, de-fluxing, and rust preventing agents in Building #17, although the precise location of the tanks could not be discerned.

The 1960 FIA map identifies a chip storage pad at the northeastern end of Building #17 (also identified on previous drawings and identified in the 1994 *Draft RIWP* as AOC-3F), one 10,000-gallon cutting oil storage tank near Building #17's eastern wall, an oil drum staging area at the southern end of the chip storage pad, five transformers along Building #17's eastern wall, and an empty drum storage area north and east of Building #17. Drawing Map #MD 2828 (1971) also depicts a sludge collector on Building #17's east wall. Drawing Map # MD P-23 (1975) shows the proposed chip conveyors for the chip storage pad east of Building #17 (identified in the 1994 *Draft RIWP* as AOC-3e). The chip conveyor transports metal chips into 30-yard roll-off containers outside the lean-to containing the chip pad and would allow coolant to drain into a sump which would transfer the recovered coolant and oil into an unspecified waste tank. It is not known where this was constructed. A tank shown on drawing Map #MD 3010 (1976) depicts a tank in the vicinity of the southern end of the chip storage pad (AOC-3F) which may have been the waste oil and coolant storage for the storage pad. Three concrete pits/tanks (AOC-4) were investigated and discussed in the 1996 *UST Closure Report*.

After divisional restructuring in the 1970's and 1980's was completed, rock drill manufacturing activities were moved offsite. In turn, Building #17 became vacant and was unsuited for other uses. It was

demolished in 1989, and the foundation subsequently paved to be used as a parking lot, which remains onsite. The former footprint of Building #17 was identified as a potential AOC (AOC-16) in the 1994 *Draft RIWP*. Investigations conducted in this area are detailed in Appendix E

In 1964 Building #17A was constructed as an addition to the north of Building #17. Facility records indicate that the building was used primarily for storage and was left standing after the demolition of Building #17.

In 1980, another addition was constructed on the east side of Building #17. As part of the building's construction, the chip pad (AOC-3E) was removed (Proposed Map # MD 3348, 1980) along with other remaining structures east of Building #17. Building #17B was proposed to contain an area for painting, spiral rod manufacture, drill pipe manufacture, pneumatic assembly and hydraulic assembly, and also contain floor trenches and a coolant recovery system (Map #3480, 1985). However, due to restructuring, it appears these operations were never commenced. Later documentation indicated its use for a laser laboratory (Map #MD 3645, 1986). Currently, Building #17B is used a gymnasium, file storage area, pump part storage for Flow Serve, and as a laser laboratory.

H.18 Building #18

Building #18 was constructed on a concrete foundation in 1905 east-northeast of Building #13 and used as an oil house associated with nearby USTs, which were located to its east. By 1933, this structure appears to have been incorporated into the expanding Building #13 as a tool shed and fuel oil pump house and was re-designated #13-G.

Around 1918, an oil pump house (also called the Foam House) was built adjacent to a 375,000-gallon oil AST (Building #79 – originally identified as #19 on FIA maps dated 1922 and 1933). Its purpose was to house the oil and foam pumps for the neighboring tank, and its original label was "Pump House". Two foamite tanks (10,500-gallon capacity) were located directly west of the building, and contained extinguishing material (foamite) in the event of a fire at the neighboring oil tank(s). It is likely that the foamite tanks were removed in 1952, based on a pencil-written note on the source document. A lean-to called "Foam Chemical Hose House" was located on the eastern wall of Building #18 (FIA 698-A, 1933). According to both the 1933 and 1960 FIA plans, the Pump House was one story and had concrete floors. Four 1.5 inch (oil) discharge lines led from Building #79 (Tank #79) to Building #18.

According to a 1938 drawing, an addition was constructed against Building #18. According to MD 240, the Foam House addition was built in 1928 and was called "18A". The 1933 FIA plan shows that the Foam House was built at a slightly higher elevation over the foamite tanks and contained cinder floors. The 1960 FIA plan showed the addition as being smaller, but still contained cinder floors (FIA 698-E, 1960).

After restructuring of the facility and the decommissioning of the Power House, the Bulk ASTs located near Building #18 were emptied and Building #18 is now used for storage.

H.19 Building #19

Building #19 was originally constructed as part of Building #16 and connected that structure to Building #13. In 1919, this area became designated as Building #19 (Map #MD 1090, 1942). In 1933, this building is identified as a Shear Room and Cutting Off Shop and may have included an oil tank (FIA 698-B, 1933). In 1952, this building contains the Forge Office and Shear Building. In 1960, the building includes a grinding room and an office (FIA 698-D, 1960).

According to the facility records, Building #19 was a shearing building, and its earliest drawing dates back to 1922 (Map #MD 59). Based on the information provided in this inventory, the buildings use evolved from a shearing shed, to a grinding department, then to having office extensions in 1944. The building contained at least one crane (Map #MD 410, 1927), a grinding department (Map #MD 440, 1927), and office extensions (Map #MD 1282, 1944). After restructuring of the facility through the 1970s and 1980s, Building #19 was vacated. In 2003, a portion of this building was leased to Stateline Fabricators for use as office space.

H.20 Building # 20

In 1913, the four-story Building #20 was built west of Building #17 and north of Building #5 for the manufacture of hammer drills. This building was constructed with a steel frame and masonry exterior with a concrete slab floors and a concrete roof. According to the 1913 FIA Plan, the building's upper three floors were used as Machine Shops, and its ground floor was used for packing and shipping. The building contained a one-story lean-to located on its southwestern corner. Tracks led into the lean-to. It was also connected to Building #22 "The Stone Building" with a covered walkway.

FIA Maps indicate initial first floor operations included a laboratory, a grinding, milling and planing area, and storage. Upper floors were used for machinery and tool storage. During the 1920s, the northern lean-to was lengthened, and the Drill Test Building (later Building #22A) between Building #22 (called the Stone Building on FIA 698-A, 1913) and Building #20 was constructed along with a utility subway along the eastern wall of Building #20 (FIA 698-B, 1922 rev. 1926).

By 1933, upper floors in Building #20 contained offices and space for tin repairs as well as a printing shop and a tool room (FIA 698-B&D, 1933).

Facility records indicate that there were plans for a new cabinet for the chemical lab in 1939; a new plating room was planned in 1942, including a plating tank; and from 1948 Ajax induction furnaces were located in the building.

In the 1950s, it appears that a navy inspection section was located on the second floor, which likely was a testing area for products contracted by the navy. In the northeastern area of this floor there was also a section that had an oil bath tank. An exhauster was to be installed as the oil bath's ventilation system (Map # MD 1965, 1953). Another drawing refers to silver soldering and an associated fume removal system (Map # MD 1955, 1953).

The 1960 FIA plans show a number of use changes in the building. The first floor still contained a chemical lab and die making area, but also had an experimental machine shop, experimental furnace testing, and a physical lab. The offices on the second floor also displayed drills and contained an electrical laboratory. The third floor still had office space and the printing shop, while the fourth floor was mainly used to store of paper, cartons, motors, and obsolete drills. Twelve transformers were added to Building #20D, one of the original eastern appendages to the building located south of the northeast corner of Building #22. Five 100 KVA and six 50 KVA transformers were grouped together, with one 150 KVA transformer located to their south (FIA 698-C, 1960).

In 1975-1976, the building underwent renovation (Map # MD 3176-1 through 5, 1975 rev. 1976) during which, the various appendages along the eastern wall of the building were united to form one contiguous area from the southern wall up to what appears to have been Building #20C (elevator). The inside of the building was reconfigured as well. On the first floor, formerly the laboratory on the southern end, now became kitchen and dining areas. Immediately north of this area was mainly office space. A transformer area not previously noted was indicated on the southern portion of the eastern wall. The northern part of the building became a manufacturing and testing area. This area contained spaces for X-ray fluorescence, chemistry uses, metallography, dark room, welding, mechanical testing, and (at the central part of the northern wall) heat treat operations. The upper floors were mainly office and storage space. In the central part of the second floor along the eastern wall there was an ozalid area, which may have contained an ammonia tank. (Map # MD 3176-1 through 4, 1975 ["as built" rev 1976]) On the third floor, there was mainly office space; however, the central part of the floor contained a dark room and a print room. The fourth floor was entirely office space. The roof's existing roof drains, were replaced as well. No information was provided on the discharge point of these drains.

By 1987 through present, Building #20 has been used solely as office space.

H.21 Building #21

Building #21 was located east of Building #20, and towards the northern end of the central facility buildings. This one-story building was constructed sometime before 1913, presumably of steel and masonry on concrete slab (FIA 698-A 1905; FIA 698-A, 1913). It began as a manufacturing building, though by 1938 it was assigned maintenance functions (Map # MD 240, 1924).

Building #21 was originally used as the Hardening Building (FIA 698-A 1913). Hardening or curing is accomplished with heat, a chemical reaction or a catalytic reaction. The process hardening consisted

of many different steps. The equipment in these steps was laid out accordingly through Building #21. This equipment consisted of special tempering tanks for dies, soda tanks (2), tempering pots (2), lead pots (13), muffle furnaces (2), brine tanks (3), oil tanks with water jackets (2), oil hardening and oil tempering tanks with water jacket (1 each), and a fresh water tank. Three tanks were labeled "S" were also present in Building 21, although their use remains unidentified. Outside Building #21 on the southeast side is a brine supply tank. Furthermore, there was a shed for tools, plates for lead hammers, a lead pot furnace, 4 case hardening furnaces, and two Ferguson Oil treating furnaces (Map # 43037, 1913). The floor in Building #21 contained a 3" downgrade from the middle of the building to a catch basin on either side of the building. Building #21 also contained a sewer line that ran the width of the building. Building #21 had a partial basement whose contents are not shown on any facility drawings. It is possible that some of the items listed above were found in the basement.

Based on facility records, the building contained a carpentry shop (1922), jitney charging room (1924), salt battery charging room (FIA1, 698-B, 1926[1922 rev]), maintenance office and storeroom (1937), a structural fabrication shop (1960), locker rooms, and washrooms. It was conclusively designated as part of the General Division by 1978 (Map # MD 3262, 1978).

According to the 1933 FIA map, several additions to Building #21 took place. Along the East Side of the building another section labeled 21-A was added. The southeast section of 21-A was labeled as the watchman's headquarters; 21-B, 21-C, and 21-D are also all new additions to Building #21. Addition 21-B is located off the western part of the north side of the building. Additions 21-C and D are located north of Building #21 and #21-D and east of 21-B. Directly to the north of 21-B are two 10,000 gallon UST's containing gasoline.

According to facility records, there are two maps which identify an area described as "Mast Crane Battery Charging" (Map # MD 1302, 1944; Map # MD 1292, 1944) which may have been in or near Building #21. A paint room with a fume exhaust room also once existed in Building #21. (Map # MD 2054, 1934) There was also a structural fabrication shop. (Map #SKMD195, 1960)

According to the 1960 FIA map, a paint storage area was located along the western side of 21-D. Furthermore, two additional storage areas were located along the same wall, however the map does not specifically indicate what was stored there.

Facility records indicate that the two 10,000 gallon UST's were removed sometime around 1986 and that Building #21 was demolished at some time prior to this date. Furthermore, contaminated soil was found and negotiations were ongoing with the NJDEP regarding remedial action. No facility records were available to document the disposition of the impacted soils, although it is possible that they were staged with other soils east of Building #17 (identified as a potential AOC (AOC-5) in the 1994 *Draft RIWP*).

Based on facility records Building #21 was demolished in 1981.

H.22 Building #22

Building #22 was built north of Building #20 sometime around 1913 (FIA 698-A, 1913). It was usually referred to as the "Stone Building" (FIA 698-A, 1913; FIA 698-B, 1922), or "Stone Drill Testing" (FIA 698-C, 1933). The structure had concrete floors, a subway led to its southeastern corner, and a "Testing Shed" lean-to was built along its northern wall (FIA 698-C, 1933). Although it originally stood alone, and later connected to Building #20 by a walkway, the one-story Building #22 was soon incorporated into Building #20 through the addition of the Drill Testing Building (later called Building #22A (FIA 698-C, 1960)) (FIA 698-C, 1933). Built sometime between 1922 and 1933, this one-story building was built on concrete between Building #22 and Building #20. No documentation was discovered regarding the materials handled or activities conducted in either Building #22 or Building #22A, although testing or rock drills seems to have been one likely activity. According to aerial photography, Building #22 was demolished sometime after 1974.

Another Building #22 was built along the southwest corner of the Spray Pond in 1980 and is the current pump testing facility. According to the Ingersoll Rand drawing inventory, the building housed the pump test facility for the Cameron division, and was labeled a "pump test pit" by the 1987 Phillipsburg Plant Building List. A storage pad for unknown materials was located to the south of the building (Map # MD 3437, 1980). At least 2 transformers were located around the facility, a 5000kVA unit along the wall facing the spray pond (facing northeast) and a 750 KVA unit the wall facing southeast (Map # MD 3402, 1980). High voltage switchgear was located inside the building. According to the plan consulted, all electrical equipment was placed on concrete pads (Map # MD 3402, 1980).

During a review of facility records, ENSR uncovered a drawing that indicated the existence of a 5,000 gallon fuel oil UST located at the western corner of the then-planned (and current) Building #22. The drawing indicated that the tank was to be removed and salvaged (Map # MD 3358, 1980).

After IR sold its pump business to Flow Serve in 2000, operations at Building #22 were moved or discontinued, and Building #22 now remains onsite and is vacant; however, Flow Serve occasionally uses the building for additional tests.

H.23 Building #23

Building #23 was constructed as the Annealing Department in 1914 and was built with an iron frame on a masonry and concrete foundation. In 1914, there were four annealing furnaces within Building #23 (Map #44823, 1914). Sand blasting activities began to be conducted in the building in 1916 (Map #44823, 1914; Map #92893, 1916). In 1918, four oil treating tanks appear on site, each equipped with an overflow nozzle (Map #94474 1918). In addition, Building #23 was extended and a pit was constructed in the extension (Map #94911, 1918). Two oil tanks existed on the northern side of Building #23. A sewer line ran almost directly under these tanks. Six furnaces were also located

above concrete in this area (Map #93209, 1917). A concrete sump was also present just outside the building. The function of the pit and sump are unknown at this time (Map #94911, 1918).

The 1922 FIA map shows a storage shed at the west end of Building #23, a sand blast area against the north wall, and quenching oil pumps within the building. The map also depicts an acetylene generator house Building #57 outside the building to the northeast. This map identifies the building as iron storage.

An unlabeled wall map, titled "Phillipsburg Plant of Ingersoll-Sergeant Drill Co.") originally dated 1904 (with revisions through the 1950's) shows Building #23 with two dust arrestors along its northern wall, an oil cooler with an associated UST along the northern wall, and a sump to its east.

Drawing Map #MD 784 (1936) identifies Building #23 as containing areas labeled drill raw storage, non-ferrous scrap storage, and scrap separating. The drawing depicts Building #23 as containing a lead coating operation consisting of an acid tank, soda tank, lead pot, and slush pot. At this time, the southern wall of Building #23 also contained a furnace and a 75-foot tall stack. Lead coating operations were moved to the lean-to the following year (un-numbered map, 1937).

The building was used in the 1950's as a Navy compressor assembly and test area. At this time it contained two test pits, trench drains, an oil pot, and a grinder (Map #MD 2179, 1957).

The 1960 FIA map indicated that Building #23 was used for heat treating, Carburizer Stage, Jackbit finishing, and sand blast. The map shows a brine tank outside of Building #23 to its eastern side. It also shows 8 transformers at the southeastern corner of Building #23.

The facility was also used by drill division as a bit brazing location, and contained a shallow pit and two sumps (locations unknown) (Map #MD 2662, 1966). Facility records and aerial photographs indicate that this structure was demolished in 1988.

H.24 Building #24

Building #24 was a steel-framed garage built before 1913 west of the location of building 20 and east of Building 4 (FIA 698-A, 1913). A gas pump and associated 500-gallon gasoline UST were located outside the building and were noted on the 1933 FIA map of the facility. Later maps show one 500-gallon gasoline UST to the east of the garage and two 1,000-gallon gasoline USTs to the west of the building. All three tanks are noted as empty (FIA 698, 1960). The center of the garage was noted as having a shop where cars may have been serviced. The garage was demolished between 1966 and 1974 according to aerial photography.

According to facility records, Building #24 is the current number designation for a pump testing facility which was built west of the Spray Pond around 1977 as a test facility for the Turbo/Compressor

Division. Though no drawings for this building were available to ENSR for review, it is apparent from the drawing titles in the inventory that the building was supplied steam, cooling water, and air (Map # MD 3053, 1977; Map #MD 3054, 1977; Map #MD 3055, 1977; Map # MD 3382, 1980; Map # MD 3491, 1981). Condensate return lines ran from the building (Map # MD 3054, 1977; Map #MD 3055, 1977). A pipe trestle and test pits were also located somewhere in the building (Map #'s MD 3044-3050 & 3055, 1977), and a gas line ran to the rotary engine (Map # MD 3385, 1980). Building #22 remains onsite and is currently used as a pump testing facility.

H.25 Building #25

Building #25 is located north of Building #24 and northwest of the Spray Pond. Building #25 was added to the east end of Building #8 sometime before 1920 (Map # MD 1090, 1942[1947rev], 1922 FIA 698E), and constructed using structural steel and masonry. By 1933, the Forging Department was located in Building #25, and addition 25-A was added to the southwest corner (FIA 698A, 1933). A portion of the floor within Building #25 was identified as "earth" and concrete. Facility drawings for 1936 indicate the railroad enters Building #25 south of the Building #8 wall and that the floor of the building contained two drains. Old press and pit foundations are present in addition to an oil engine area with concrete floors.

Activities conducted within Building #25 were not documented in the materials reviewed; however a steam turbine was removed from the building around 2002.

At the time of the steam turbine removal, a number of floor drains and a concrete-lined pit were observed in the floor of Building #25. The pit and two of the floor drains were inspected in Building #25 in September 2003 and were found in good condition. These three structures were filled and capped with concrete after their inspection to facilitate the placement of new facility air compressors to supply compressed air to facility manufacturing activities. Building #25 remains onsite and is utilized as a housing location for the facility's air compressors.

H.26 Building #26

Building #26 was built of iron and steel sometime around 1919. (Map # MD 1090, 1942) It was located directly south of Building #6, (FIA 1933) and served various functions such as office space, educational and training facilities, and employment office. In later years it was labeled as a training building (Map # MD 2868, 1973). At some time in the site's past Building #26 received a brick exterior. It remains onsite, but is only used on occasion.

H.27 Building #27

Building #27 was built using a tile roof and concrete floors and walls in 1917, and has been the designated hospital or dispensary on the Ingersoll Rand Site since the time of its construction. Building

#27 has changed very little over the years with the exception of an addition that was built in September 1953, nearly doubling its size. The first floor of this building has changing rooms, examining rooms, restrooms, storage rooms, therapy rooms, and a laboratory at the far east end of the hall.

The majority of the medical work occurred in the basement of Building #27. The X-ray room is located at the bottom of the eastern stairs, with the fingerprinting and photographing room across the hall. Bordering the X-ray room is the eye examination room followed by the minor operations room. The rest of the basement is used for storage (utility, permanent records, clothing etc).

Building #27 remains onsite and is vacant.

H.28 Building #28

In 1918, a brick and concrete pump house (Building #28) and associated piping were added to allow the spray pond water to be sprayed over the reservoir surface to increase its cooling. Two A.S. Cameron No.4 electrically-driven centrifugal pumps (300 gpm) were located in this building. (FIA 1933) This building contained a suction well, which was also labeled as discharge to reservoir, or suction to condenser. (FIA 698, 1960) Based on aerial photography, this pumping and spraying equipment was upgraded between 1974 and 1981, to reflect the current pond equipment and appearance.

Building #28 remains onsite but is not in use.

H.29 Building #29

This building was built of concrete in 1919 as a locomotive house. According to FIA 1933, building 29 is located east of buildings 11 and 12. No pits were found around this building according to the FIA maps for 1933 and 1960.

Building #29 remains onsite and is vacant.

H.30 Building #30

Building #30 was built in 1920, apparently of concrete with an earthen floor. This building housed the casting and cleaning operations for the Iron foundry, and contained areas for cleaning large pieces and small pieces of castings.

Two tanks were located along the eastern side of the building; however, their contents could not be determined from the drawing. Wheelabrator machines, dust collection systems, a power hacksaw, a grinder, hydro sand blast, and possibly an air blast unit were operated within the building. In the

northwest corner of the building there was a quench tank and a forge (no dimensions provided). (Map # MD 1140, 1942)

On the southwestern corner there was a gas cylinder storage area (no dimensions given). On the southern wall facing Building #4 there were transfer tanks that lead to/from Building #4. It could not be determined what these transfer tanks held. There was a set of tracks that lead from Building #4 through Building #30. These tracks could have been used for finished and raw material product movement. To the east of the tracks there was a blast cleaning room based on an unlabeled drawing.

The schematics are given for two centrifugal arrestors in another drawing. It could not be determined what this was or what it was used for from the maps. One arrestor is located adjacent to the tracks that run through Building #4. The other arrestor is located to the right of the foundry. To the north of the centrifugal arrestor there was a sand bin and to the north of that there was a radial arm conveyor. On the East Side of Building #30 there was a large tumbler. On the eastern side there were two blenders (along the eastern wall). To the east of the two blenders (on the eastern wall) there were two tumbling mills (no dimensions provided). To the north of the tumbling mills there was a motor (no specifications given). There were also two conveyors located in between Building #4 and #30. The conveyors' were labeled as Grating and Conveyor. Their use could not be determined. (Unknown drawing number)

On one document reviewed two locations are labeled "Carborundum", which likely refers to an electric furnace used to make Carborundum (Silicon Dioxide), which is an industrial abrasive. Some of the by-products of the casting cleaning operation can include VOC's, metal particles, and cyanide and metal-bearing sludges. (Un-numbered, unlabeled, undated drawing)

Building #30 was attached to the iron foundry (Building #4) by an extension of the foundry, probably built at the time of Building #30's construction. Building #30 is not known to have undergone any major additions, renovations, or changes in use over its decades of use. It was demolished in 1988, according to facility records.

H.31 Building #31

Building #31 was a one-story gate house located near the facility entrance from Memorial Parkway (US Route 22), constructed of tile with a concrete floor. It was built sometime before 1922. It was demolished sometime between 1974 and 1981, based on aerial photography.

Prior to the gate house at memorial parkway bearing the Building #31 designation, a guard house southwest of Building #4 (iron foundry) was designated Building #31. This guard house appears to have been demolished between 1922 and 1933 based on FIA maps.

Building #31 currently is an extension of Building #3, and is vacant.

H.32 Building #32

Building #32 was a one-story pipe and pipe storage shop constructed of iron and steel before 1922 (FIA 698-D, 1922). It was located north of shop 8, and west of Building #7. By 1933 it was utilized to store small castings and miscellaneous small supplies (FIA 698-D, 1933). In 1952, this Building was labeled as Compressor Storage, according to facility sources. Building #32 was demolished in 1988, according to facility sources.

H.33 Building #33

Building #33 was located directly off the southwest corner of Building #3. This building was constructed as a metal frame building on a concrete slab in 1924, and was labeled as aluminum/brass foundry, and also had a metal storage facility on the north end. The 1933 FIA map shows Building #33 as having sand bins on the north east side. At some time between 1933 and 1960 the building was expanded to accommodate aluminum foundry work in addition to its brass foundry functions. A 100 KVA transformer was located off the northwest corner of this building. Three core ovens, one of which is an aluminum core oven, were located on the northeast corner of the building. To the north of the building was an area labeled as metal flasks (FIA 1960). There was also a monorail system in Building #33. (Map # MD 1605, 1948; Map # MD 1071, 1942)

Building #33 has not undergone any known major changes of dimensions, configuration, or function since the addition of aluminum foundry activities prior to 1960. Foundry activities reportedly ceased in Building #33 by the mid 1990's. Building #33 remains onsite and is vacant.

H.34 Building #34

Building #34 was built sometime before 1913 as a one-story concrete structure with a steel frame and a concrete floor (FIA 698-A, 1913) located between Building #9 and #10, on the south side of Building #8. In 1933, this building was identified as a the Compressor Tool Room (FIA 698, 1933), and is depicted as having 5 transformers located along its southern wall. In 1952, this building is still identified as the Compressor Tool Room. In 1960, an addition is added to Building #34 (FIA 698D, 1960). A map from the 1990s identifies this building as containing a shipping office, cafeteria, electric stoves, inspection area, inspector's office, time office, locker rooms, showers, and a tool crib. Equipment included lathes, grinders, cranes, and a wash tank. At some time this building was utilized for erecting turbo and floor compressors.

Building #34 remains onsite and is vacant.

H.35 Building #35

Building #35 located southeast of the iron foundry (Building #4) and historically used as a Garage. This building was constructed between 1920 and 1929. According to facility documents and a review of aerial photographs, Building #35 was demolished in the 1960's.

Since then, Building #35 has since been used to designate the facility production well and adjacent chlorinator shed located immediately north of Building #28. The well remains onsite and is in use; the chlorinator shed is not used.

H.36 Building #36

Building #36 was a garage built of wood and iron with an earth floor built prior to 1933 (FIA698-C, 1933). It was located northeast of Building #4 and east of Building #44 (FIA 698C, 1960). It was demolished between 1962 and 1966 according to aerial photography.

Building #36 is located between Buildings #9 and #11 at the northern end. According to a 1974 map, the area between the Building #11 and Building #9 is identified as the "Air make-up unit", which according to current maps, is now identified as Building #36. In addition, catch basins and a fenced transformer pad are located adjacent to this structure. According to a map from the 1990s, Building #36 contained a sandblast facility, Gage Room, and a 300-gallon barrel caddy and 55-gallon drum storage rack.

Building #36 remains onsite and is vacant.

H.37 Building #37

The original Building #37, the Rock Drill Test Building, was built of boards and joists on a concrete foundation prior to 1922, and was called "Building #22A – Testing Shed" originally. It was located north of the original Building #22. By 1933, the building was labeled #37, and served as a testing area for rock drills. It was demolished in 1952 according to facility records.

A second Building #37 was built of wood and aluminum a little further north of the first Building 37. It was also a drill testing facility, and it was demolished around 1975 according to facility records.

In 1978, a third Building #37 was constructed using structural steel on a concrete foundation at the northeast corner of the site to house the Ingersoll Rand Trucking Operations (IRTO) terminal. Building #37 remains onsite and currently is leased to a school bus company. According to the 1985 RCRA Application Part A, the IRTO used a 10,000-gallon diesel fuel tank.

H.38 Buildings 38, #38A, 39, 40, M

Building #38 was used for salvage storage, and was built of iron and steel prior to 1933. (Map # MD 1019, 1941; FIA 698-A, 1933) In addition, a ramp for scrap loading was used. (Map # MD 1114, 1942) Building #38A was located northwest of Building #17 Cell division. Building #38A was a steel storage shed and the east facing side of the building was open. Attached to the north side of Building #38A is a shed. This shed joins Building #38A and another shed called Building #M and formed a courtyard between the two.

Building #M was built in 1918 for storage-maintenance and salvage purposes. Building #M was built atop a stone floor; with steel walls. The south portion of Building #M was used for paper bailing while the north portion was used for salvage purposes (FIA 1960). Other uses of Building #M included miscellaneous and old machine storage. Buildings #39 and #40 were added onto Building #M as additions. In the 1960 FIA map they are not labeled as separate from this building.

This complex of buildings was demolished in the 1980's.

H.41 Building #41

Building #41 was a building designation used for a mess hall in the 1920's, which was located north of Building #17. Building #41 was also used to designate a propane filling and storage location near Building #4 (iron foundry). The exact location of either of these structures is not known, and neither is currently onsite.

Building #41 was also used as the facility designation for a propane tank which existed onsite in the 1970's and was removed in the 1980's.

H.42 Building #42

According to IR facility records, this building was labeled as "Bunk" around 1917 and was later demolished in 1952. No additional information was found regarding Building #42.

The Building #42 designation currently is used in reference to the main electrical substation.

H.43 Building # 43

According to facility records, Building #43 was a wash room built around 1920 and demolished around 1952.

Around 1959, a third bulk oil storage tank and was erected near Tank #79 and Tank #100 and was designated Building (Tank) #43. The tank remains onsite, but has been out of service since about 2001.

H.44 Building #44

Building #44 is a venturi water meter house located west of Building #36 (garage) (Map # MD 2527, 1961; FIA 698, 1960). No additional information was found concerning this building. Building #44 currently exists at the facility and remains the location for the connection to the city water system.

H.45 Building #45 (Truck Scale House)

Facility records indicate that Building #45 was a scale and scale house located north of the northwest corner of Building #17 (Map # MD 1090, 1942 rev.1947). The first document known to have referred to this building was dated 1943. Building #45 was removed from the site sometime between 1966 and 1974.

H.46 Building #46

Facility records indicate this building was used as a fuel oil pump house. However, it could not be located. This building was reportedly demolished in 1940; however, this information could not be confirmed through other documentation.

The FIA map from 1922 identifies a Building #46 as an auto shed east of pattern storage houses “I” and “K”. Building #46 (auto shed) was apparently demolished between 1933 and 1960.

H.47 Building #47

Building #47 was identified as a propane facility which was constructed in the 1970s west of the foundry area. The facility was demolished sometime in the 1980s.

H.48 Building #48

Building #48 was identified in facility documents as annex #3 and was demolished by 1952. No additional information was identified regarding this structure.

H.49 Building #49

Building #49 was identified as a hose house in 1952.

H.50 Building #50

The Acetylene Generator building (Building #50) was built around 1925 and was dismantled by 1942. The building itself was located on the outside of the northwest corner of Building #4. The inside of the building contained two tanks of unknown capacity containing water and acetylene. Drawing # 111078 provides a cross-section of these two tanks. One method of producing acetylene involves placing rock carbide in a hopper and dropping it slowly into a water tank, where spontaneous generation of acetylene gas occurs. The existence of the water and acetylene tank would appear to indicate that this is the method that was used for acetylene generation.

Two pipes exited from the top of the building (possibly for excess fumes). A pipe that exported acetylene exited from the side of the building. It is likely that it ran to the foundry area, as this is the only other area where an acetylene pipeline was found. A 10" tile or terra cotta drainpipe led to a pit labeled "residuum" off to the left of the building. There was also a bell trap located near a 6" pipe that leads to a sewer line. The demolition date of this building is unknown.

H.51 Building #51

According to FIA maps, Building #51 was constructed around 1925 and was identified as a dust collector. By 1943, Building #51 was demolished.

Building #51 was later identified as a sand conveyor house in 1952. However, this could not be confirmed through other documentation.

H.52 Building #52

According to FIA maps, Building #52 was constructed around 1925 as a reel house south of Building #4 (iron foundry); an incinerator was present to the west. By 1952, Building #52 was identified as a hose house. It no longer remains onsite, and was most likely demolished either during the demolition of Building #4 or prior to that time.

H.53 Building #53

Building #53 was constructed south of Building #10 around 1933 and is identified on facility records dating to 1952. Uses for Building #53 were identified as bolt storage, steel storage, pipe shed, and sandblast. Another building, Building #PS-1, also located south of Building #10 was also identified as Building #53. It is unclear from facility documentation if these buildings are the same structure or are separate. Building #53 appears to have been demolished in the 1940's.

In the 1970's, Building #53 is referred to as a truck shed. No other information was available concerning this structure.

Building #53 is the current designation for the facility truck scale, located south of Building #37. It was constructed in the 1980's, and remains onsite.

H.54 Building #54

Building #54 was constructed circa 1915 south of Building #10 and was used as a storage shed for various parts and equipment to support the Compressor Division. Building #54 was demolished in 1944.

Building #54 also was the designation for scrap bins south of Building #10 (FIA 698, 1960). These also have been removed.

H.55 Building #55

Based on the earliest drawing listed in facility records, Building #55 was constructed prior to 1942 and was located south of Buildings #9 and #10 (Map # MD 1090, 1942). Initially, Building #55 was identified as a scrap shed containing cut-off bins, steel room, and storage for the Turbo/Compressor Division. It was reportedly demolished in 1944.

Building #55 (cut off building) was constructed around 1953, south of Building #9. Cutting activities and sand blast activities (FIA 698, 1960) were both reportedly conducted there, according to facility records.

Facility records indicate that Building #55 was demolished in the 1990's.

H.56 Building #56

Building #56 was formerly identified as Storage Shed "B" then later demolished in 1952.

By 1957, Building #56 was an air facility building. An incinerator was located to the southwest and adjacent to the lumber storage area. Building #56 was later demolished in the 1970s.

H.57 Building #57

Building #57 was constructed of iron and wood around 1915 as an Acetylene Generator House north of Building #23. The use remained unchanged until its demolition in the 1980s.

H.58 Building #58

Building #58 appears as a wash room east of Building #17 in 1922 (FIA 698, 1922). This building was demolished before 1933.

Building #58 was a miscellaneous storage shed built before 1960 (FIA 698, 1960). This building stored tar paper and other miscellaneous materials. It has since been demolished.

Building N, later called Building #58 was used for pattern storage (Map #MD 3581, 1960; FIA series 698, 1960). This building was constructed of iron and steel between 1913 and 1922 (Map # MD 402, 1927) and demolished in the 1970s or 1980s.

H.59 Building #59

Although not given its identification until the 1920s, Building #59 was constructed in 1905 as scrap bins. In 1925, Building #59 was used as a chip bin and reverted back to a scrap shed in 1952. According to facility records, this scrap shed was demolished in 1952. Its former location was not identified on facility documents.

H.60 Building #60

Building #60 was constructed in 1925 in the drill division of the IR facility. This was an oil-purifying shed attached to Building #17. In the 1930s, Building #60 (renamed Building #W), was used as a testing building. Demolition is estimated around 1955.

In 1957 a new Building #60 was constructed as an addition to the foundry area located just south of Building #3. The IR inventory identifies the building as performing “non-destructive testing”. It was primary used as a radiograph building; x-rays were taken of the castings to ensure quality. The two main areas were exposure and film developing rooms, though it is unclear in which area they were located (FIA 698-C, 1960).

The chemical and film storage room were located on the northeast corner of the building (Map #MD 2216, 1957), developing tonic area (Map # MD 2216, 1957), and three radiological exposure rooms (Map # MD 2216, 1957) were located in the building. This building has concrete floors.

Building 60 (radiograph building) remains onsite and is vacant.

H.61 Building #61

Although not given its identification until the 1930s, Building #61, also labeled as Building #V, was constructed in 1915 east of Building #17and used as a pickling shed. It was located north of the scrap shed and later demolished in the 1950s.

According to facility records, another Building #61 was constructed east of Building #17 in 1952 and used as a wagon drill storage facility until its demolition in the 1970s.

H.62 Building #62

Building #62 was constructed in 1952 north of Building #23 as a drill storage facility. According to historical records a paint storage vault and spray painting area was present on the eastern side of this structure (FIA 698-E, 1960). This building was demolished in the 1980s.

H.63 Building #63

Building #63 was originally identified as a brass chip storage shed along the eastern wall of Building #16 in the 1920s. This structure was demolished between 1922 and 1933 according to FIA maps.

Building #63, also labeled Building #O, was constructed in 1925 and used as a warehouse annex and storage shed. In 1952, this was used as a scrap shed and storage area for forge equipment and materials. Since 1987, Building #63 has used as a maintenance garage, and remains onsite.

H.64 Building #64

Constructed in 1933, building 64 was the foundry gatehouse. It was demolished in 1947 and replaced with a parking lot.

In the 1950's, Building #64 was constructed as a bunkhouse. No other historical data is available for this building.

H.65 Building #65

Building #65 was constructed in 1933 as a water closet associated with Building #64. It was converted to a waiting shed in 1947 before being demolished in 1952.

According to the FIA maps, a new Building #65 was constructed in 1966 as air facilities and was demolished in the 1970s.

H.66 Building #66

Building #66 (Cameron guard house) was constructed in 1935. It was used as a guardhouse for the Cameron pump division and was located at the intersections of Roseberry and Center Streets (FIA 1180, 1933; FIA 698, 1933). It appears to have been demolished in the 1950's, based on aerial photography.

Building #66 (Gas power development) was apparently built around 1966. Based on facility records, the building was identified as the Gas Power Development Building and was heated with oil by 1966. Its location was not identified on facility documentation.

According to facility records, a new Building #66 was built in 1980 (Map #MD 3416) along Building #24's eastern wall. During this time the building served as a storage shed for the Turbo/Compressor Division. In 1987, this building was identified as a test development lab. This building remains onsite.

H.67 Building #67

Building #67, a locomotive crane, was constructed in 1913 of iron, wood, and steel. From 1952, until being demolished in the 1970s, this was used as a storage shed.

H.68 Building #68

Building #68 was constructed around 1919 of wood and iron with a concrete floor and a metal fume hood, and was described as Cutting Oil Manufacturing Building or as Oil Mixing House. It was located approximately 270 feet east of Building #23, and was demolished in the early 1950's.

H.69 Building #69

According to the FIA maps, Building #69 was constructed in 1935 and used as a railroad scale. This is located within A.S. Cameron Steam Pump Works. No other historical data was available for review for this building; the demolition date of this building is unknown.

H.70 Building #70

Building #70 was a pump house constructed in 1952. This was reportedly not used. No other historical data is available for this building.

H.71 Building #71

Building #71, also labeled as Building #T, was constructed in 1913 as a mine hoist and was demolished in the 1950s.

H.72 Building #72

Building #72 was the mine shaft house and was demolished in the 1950s.

H.73 Building #73

Built in 1925, Building #73 is identified as lumber storage sheds (FIA 698; Map # MD 3581). This is located within the foundry, south of Building #4 along the rail road tracks. Building #F was renamed to Building #73 in the 1970s. Building #73 was demolished in the 1980s.

H.74 Building #74

Constructed in 1913, Building #G was utilized for flask/obsolete pattern storage located within the foundry. This building was renamed Building #74 in the 1970s. The facility use remained constant until its demolition in the 1980s.

Another Building #74 was a dust arrestor shed built sometime in the 1920's. Based on available historical records, it could not be determined when this building was built, however it was demolished in 1952.

H.75 Building #75

Constructed in 1913, this building was located near off the northeast corner of Building #3 and is labeled as a casting cleaning building on various maps (Map # MD 2948, 1975). This building was identified as Building #H until the 1970s when it was renamed Building #75. After initial construction, it was used for flask/obsolete pattern storage. In 1955 the build was still used for pattern storage and an oxygen tank was installed to the west. Building #75 was demolished in the 1980s.

Another Building #75 was noted in facility records. This was used as a sand blast house. Based on available historical records, it could not be determined when this building was built, however it was demolished in 1952.

H.76 Building #76

Constructed in 1913, Building #76 was used for flask/obsolete pattern storage and was originally designated Building "I". It is located between pattern Buildings #K and #G. This building was renamed to Building #76 in the 1970s. It remained as a pattern storage building until its demolition in the 1980s.

Another Building #76 located within the foundry area was noted facility records. This is described as a hose house. Its location was not depicted on documents reviewed.

H.77 Building #77

Built in 1905, Building #77 are concrete storage bins for coal, sand and clay. This structure, located east of Building #4 (iron foundry) was later used as foundry sand bins in 1952. They were built around

1905, and were either demolished or filled before or during the demolition of the iron foundry (Building #4) in the 1980's.

H.78 Building #78

In facility documents, the Spray Pond was identified as Building #78. The Spray Pond was constructed in 1905 east of Building #10. It has been called a reservoir, a condenser pond, and a spray pond at various times over its decades of use. It is a 2.5-million gallon surface impoundment of water which the facility utilized as a source of cooling water and pump testing water as well as a stormwater retention basin. The Spray Pond remains onsite and is used for non-contact cooling water discharges and as a Stormwater retention basin.

H.79 Building #79

Building #79 was constructed in 1915 as a bulk AST for oil. This tank appeared to have been initially identified as #19 but was changed to #79 upon the completion of Building #19 north of Building #13. In the 1970s, a bulk oil tank was constructed just northeast of the original location of Building #79 and was also named building #79; however, the original Tank #79 was renamed #86 and was used as a potable water tank. Although it is unclear, it is expected that the original tank was removed and was replaced with the water tank. Tank #79 remains onsite, but it has been out of service since approximately 2001.

H.80 Building #80

Built in the 1920s, Building #80 was originally a gas tank, possibly for natural gas storage. Its estimated time of demolition is between 1947 and 1952.

Another Building #80 was constructed in 1957 to be used for file storage. This building was demolished in the 1970s.

H.81 Building #81

Built in the 1920s, Building #81 began as a mine hoist for the testing mine in the foundry area, just north of Building #4. By the late 1920s, it was labeled as a sharpener building. From the limited historical information available for this building, it appears the building became a student blacksmith shop by the 1950s. Building #81 remained a learning center until its demolition in the 1970s.

H.82 Building #82

Building #82 was a rock drill testing building located east of Building #17. It was constructed around 1933, and was demolished in the 1980's.

H.83 Building #83

Building #83 was constructed east of Building #17 around 1933, and its function was identified by differing sources as casting stage, drill storage, and oil house. The northern section of this building was designated as oil staging. Map #MD 3010 (1976) indicates that Building #83 houses an oil-containing structure. The building was demolished in the 1980's.

H.84 Building #84

This building was built around 1926 and used to store lumber (Map # MD 345, 1926). It was demolished between 1974 and 1981.

H.85 Building #85

This was used as a Derrick House (FIA 698, 1960). It was built between 1922 and 1933, based on FIA maps. It has been demolished, but the date of its demolition is not known.

H.86 Building #86

Building #86 was erected as a water tower next to Building #8 around 1905. This structure was demolished in the 1970's.

Another Building #86 is located south of Building #110 and east of the bulk oil storage tank farm, and remains onsite as a 375,000-gallon potable water tank.

H.87 Building #87

Building #87 was constructed in the 1910's, was located northeast of #17 and was classified as a Gun Club, Seed House, and Garden House before its eventual demolition in the late 1970s.

Building #L was a lumber storage yard built in 1913 (Map # MD 1090, 1942) located south of Building #4 along the railroad tracks. Building #L was renamed Building #87, and was demolished in the 1980's.

H.88 Building #88

Building 88 was the facility coal trestle, and was located on the eastern side of the facility south of the bulk oil storage tanks. It was built around 1915 of concrete and steel, and stood as high as around 35 feet above the surrounding ground. This was the facility's primary coal storage facility. It was demolished in the 1970's, but its concrete foundation remains.

H.89 Building #89

Building #89 was a truck garage built of cinder block, concrete, and steel with a concrete floor around 1942. It was located at the north end of the facility, north of Buildings #17 and #38. It was demolished in the 1980's.

H.90 Building #90

Building #90 was constructed east of Building #17 around 1942 and was a storage building for the drill division. The 1960 FIA map labels an area in its western side as "paint", another area at western side as containing a metal bin, and storage along its western external wall as "50 Gal. Drum Stage. Solvents, Oil, Etc.". Building #90 was demolished in the 1980's.

H.91 Building #91

Building #91 was built in 1942 of concrete block and steel with a concrete floor, about 230 feet due south of the original southern wall of Building #9 (Map # MD 1090, 1942 rev. 1947). Building #91 was identified as a Babbitt Building in 1942 (Map #MD 1194, 1942). The building contained tanks labeled as lead, tin, and solder. In addition, four tanks identified as acid, alkaline, 1st rinse, and final rinse were identified on maps reviewed for Building #91. Building #91 also contained a furnace and an exhaust system (Map # MD 1194, 1942). Outside the north end of the building was a stack. In the 1960's a transformer was added at the building's southwest corner (Map #MD 2708, 1967). Building #91 was demolished in the 1990's.

H.92 Building #92

Building #92 was a guard house at Gate #20.

H.93 Building #93

Building #93 was a guard house at Gate #21.

H.94 Building #94

Building #94 was a guard house at Gate #22.

H.95 Building #95

Building #95 was a guard house at Gate #23.

H.96 Building #96

Building #96 was a guard house at Gate #24.

H.97 Building #97

Building #97 was a guard house at Gate #25

H.98 Building 98

Building #98 was a guard house onsite which was demolished around 1945.

H.99 Building #99

Building #99 was a passenger bus terminal located near the facility's current truck scale (Building #53). It was built around 1942 and demolished in the 1970's.

H.100 Building #100

Building #100 is a 35-foot diameter bulk oil storage tank located in the bulk oil storage tank farm at the eastern end of the facility. It was built around 1942, and remains onsite today, but has been out of service since approximately 2001.

H.101 Building #101

Building #101 is the foundry office building. According to facility records, it was built in 1976 and located on the east side of Building #4 (Map # MD 2932, 1977). It remains onsite and is utilized as office space.

H.102 Building #102 and Adjoining former #17A

Two adjoining buildings, identified as Buildings #17A and #102, were formerly located immediately west of Drill Division Building #17. These buildings are identified as the Drill Division's shipping and receiving departments. Building #17A was built before 1919 (Map #MD 1090, 1947) and Building #102 was built around 1940 (1939 Aerial Photo, FIA 1933; Map #MD 1090, 1947; Map #MD1018, 1941). Both were razed between 1974 and 1981. A separate building immediately north of the former Building #17 is currently designated as Building #17A.

H.103 Building #103

Building #103 was constructed around 1945 as a storage building for the compressor division. It was made of asphalt coated metal and wood, and was located west of the spray pond. The 1960 FIA map notes that this building stored a 55-gallon drum of kerosene. It was demolished in the 1970's.

H.104 Building #104

Building #104 refers to three 10,000-gallon fuel oil ASTs located immediately west of the bulk oil storage tank farm. The tanks first appear in facility records in the 1940's and are called "day storage tanks". They were equipped with an oil pump and oil piping. In the 1980's or earlier these tanks were taken out of service as oil storage tanks.

In the late 1980's, the tanks were also retrofitted with baffles and piping to be used as oil-water separators. A metal building was erected over the tanks in the early 1990's to house the oil-water separator units, which has become known as Building #104 as well. Building #104 (both the tanks and the associated metal building) remain onsite, and are being used for groundwater remediation.

H.105 Building #105

Based on available historical data, Building #105 was built south of Building #9 and possibly received additions in 1963 and 1975 (Map # MD 2557, 1963; Map #2560, 1975; Map # MD 2992). This building had several different uses over the years. The earliest use of Building #105 was as a Pangborn Sandblast Unit (Map # MD 1802, 1951; Map #1803, 1951). It was identified as a shot blast cleansing shed in 1948 (Property Books), shot blast in 1952 and 1987, and as a sandblast building with dust collector and fan house (FIA 698D, 1960) in 1960, In 1963, the building received an addition to house a 96-inch wheelabrator (Map #MD 2557, 1963; Map # 2560, 1963). A wheelabrator is an abrasive-blasting machine commonly used in shot blasting and in blast cleaning associated with foundries.

The shot blasting and sandblasting processes are likely used for surface preparation to remove any burs or oxides on the steel prior to painting. Sometimes the metal is moved on a conveyor through a hot air oven following painting. A waste oil tank was located along the west side of Building #105.

Building #105 was demolished in the 1990's.

H.106 Building #106

According to facility records, this building was built in 1964 and was designated as a pattern storage building. It was built west of Building #2. It remains onsite and is used for storage.

H.107 Building #107

Building #107 was a shot blast facility built in the 1960's between Buildings #3 and #75. It remains onsite and is vacant.

H.110 Building #110

According to facility records, this is a pump house built in 1974. It remains onsite as a pump house.

H.111 Building #111

According to facility records this building was built in 1975. This structure remains onsite, but is in disrepair and is no longer known as Building #111.

Building #111 is metal building which houses a packed tower air stripper used to treat the facility's drinking water. It was built around 1992 and remains onsite.

H.251 Building #251

The Cameron Powerhouse (later designated Building #251) was apparently constructed in 1911, and expanded in 1920 (un-numbered map, 1904 rev. 1947). Building #251 was originally divided into two parts, the Engine Room and the Boiler Room (sometimes identified as 251A and 251B, respectively). The Engine Room portion of Building #251 had a concrete basement, and its ground floor contained air compressors, engines, and generators. The Boiler House portion of Building #251 also had a concrete floor, and contained five horizontal boilers. A smokestack of unknown height was located along the central part of the building's northern wall. A coal trestle approximately thirty feet in length was located adjacent to the powerhouse's eastern side (FIA 1180, 1922).

By 1933 the former Boiler Room (Building #251B) had become the Weld Shop with a Metal Saw House lean-to on its northern wall, though the Engine House still functioned in its original capacity. The Power House complex; however, was no longer a stand alone building, as an expansion of the nearby Building #252 had linked the two buildings at the northwestern corner (FIA 1180, 1933).

A map interpreted as dating from 1952 shows that Building #251 had become a fabrication and maintenance area. The accompanying list of buildings from 1952, to which this map was attached, lists the use of Building #251 as being steel fabrication, maintenance shop, and electrical substation.

According to FIA plans, Building #251 remained basically unchanged from 1933 to 1960.

No information was found to concerning Building #251's use between 1960 and its demolition around 1990.

H.252 Building #252

Building #252 (also called the Cameron Main Building) was built in 1911-1912 to house the manufacturing of Cameron pump equipment after production of the pump product line moved onsite (FIA 1180, 1922). As of 1922, Building #252 contained a carpenter shop inside its southern wall, a two-story iron casting storage house along its interior northwestern wall, and a two-story brass casting storage house along its interior northeastern wall. In the central part of Building #252 a stock room, a brass room, and a tool room were located. Other operations that took place inside the building were: packing, shipping, erecting, assembling, testing, drilling, milling, planing, boring, and turning. Two railroad tracks serviced the building at its southern end, while a third set of tracks track passed the building along its western wall (FIA 1180, 1922).

By 1933 a variety of changes had taken place on the Cameron site (FIA 1180, 1933). Building #252 had been expanded and adjoined with Building #251 (Cameron Powerhouse). Many of Building #252's uses were also altered. At the southern-most end, the carpenter shop disappeared and was replaced by an assembling/receiving area and a machine shop. The remainder of the building was essentially the same as in 1922 except the northern-most end. The brass casting storehouse was replaced by office space and a first-aid area. At roughly the end of the former two-story storage area, an 80 ft by 80 ft extension was added for a loading shed with concrete floors (FIA 1180, 1933).

On a map presumably from 1952, Building #252's northwestern most corner is indicated to have been a hydro-test area and a storage area. South of this, west of the main aisle, were the drill press areas. East of the main aisle were lathes and grinders. The Weld Room moved to the southern most area of Building #252. A babbitting room was located at the southeastern-most corner of Building #252, while planers and a sand-blast room were located on the southwestern-most corner.

According to the review of the Cameron FIA plans, by 1960 Building #252 had again been expanded and contained a number of new operations and machinery, in addition to its old functions. New or relocated features for Building #252 include sand blast, spray booths, washing machines, automatic hydrogen-oxygen-acetylene-electric welding, and gas heat treating furnaces, which were located inside the southern part of Building #252. An oil and grease storage area was added inside the central part of Building #252. A 10-ton northern craneway was also added along the central part of the southern wall of Building #252 and extended approximately 350 feet.

The rest of Building #252's functions remained as they were in 1922 (FIA 698-A, 1960).

No information was found concerning Building #252's use between 1960 and its demolition in the early 1990's.

H.253 Building #253

A garage, located south of Building #252, was built in 1911 and later numbered Building #253. This garage is present on the 1933 FIA map and a general site map from 1940 (Map #MD 950), but is absent from the site on a map from 1952.

Based on aerial photography, another building called Building #253 (FIA 698-A, 1960) was constructed parallel to Building #252 at the northeastern corner of the Cameron facility between 1939 and 1951. The map presumably from 1952 identifies this building as the motor pump section, and depicts a truck dock at its southern end. The accompanying list of buildings from 1952, to which this map was attached, lists Building #252 as a small pump manufacturing shop.

According to the review of the Cameron FIA plans, functions performed in Building #253 in 1960 included part storage, crated machinery storage, paint spraying, and office space. A railroad track ran along the western wall of Building #253 and inside its northern extent. Along the western wall of Building #253, west of the railroad tracks, there was a retaining wall. West of the retaining wall there was a scattered lumber storage area on a concrete pad between this building and Building #252.

No information was found concerning Building #253's use between 1960 and its demolition in the early 1990's.

H.254 Building #254

A list of facility buildings from 1952, notes that the Cameron facility formerly had a Building #254, but that this number was eliminated in 1941 and that the building was absorbed into Building #261. No other information is available concerning this building.

Another Building #254 was built around 1963 and was used for storage (Map # MD2550, 1963). It was located adjacent to the northeastern wall of Building #252 and west of Building #253 on part of the outdoor storage yard which was located between Buildings #252 and #253.

No additional information was found concerning Building #254's use between the times of its construction around 1963 and its demolition in the early 1990's.

H.255 Building #255

A list of facility buildings from 1952, notes that the Cameron facility formerly had a Building #255, but that this building was demolished in 1941. The Building's use was identified on the 1952 facility building list as a cut off building. Its location is not known. No other information is available concerning this building.

Another Building #255 was built around 1963 (Map # MD2554, 1963). It was located south of Buildings #261 and #262, and used for storage.

No additional information was found concerning Building #254's use between the times of its construction around 1963 and its demolition in the early 1990's.

H.256 Building #256

A list of facility buildings from 1952, notes that the Cameron facility formerly had a Building #256, but that this building was demolished in 1941. The Building's use was identified on the 1952 facility building list as a cut off and storage building. It was located north of Building #261 and west of Building #252 on land later used for the expansion of Building #261. No other information is available concerning this building.

H.257 Building #257

By 1933 Building #257 appears onsite. It was built at the northern end of the Building #252, reducing its length by about 20 feet, and served as Cameron's erecting shop. This new unit housed painting and erecting (FIA 1180, 1933). A loading shed affiliated with Building #257 was located against its southern wall. This loading shed opened to the storage yard to its south (and east of Building #252), and served as a shipping location.

A map, presumably from 1952, shows the function of Building #257 as "large pump assembly" and the function of an eastern addition to Building #257 as "shipping". The accompanying list of buildings from 1952, to which this map was attached, lists Building #257 as an erecting shop and shipping area.

By 1960, according to the review of the Cameron FIA plans, the function of Building #257 (Erecting Shop) remained as they were in 1933 (FIA 698-A, 1960) but the building's addition to the east is labeled 257-D. A covered truck dock was added along the northeast wall of Building #257-D. A railroad track entered 257-D from the vicinity of Building #253's western wall. Paint spraying occurred in the loading shed adjacent to Building #257.

No additional information was found concerning Building #257's use between 1960 and its demolition in the early 1990's.

H.258 Building #258

By 1933, Building #258 (Erecting Building Lean-To, later known as Testing Facility) (FIA 1180, 1933) appears onsite. It was built as a lean-to building along the northern wall of Building #257. This new unit housed a basement-level, concrete-lined reservoir, and was the Cameron facility for pump testing activities.

A map, presumably from 1952, shows Building #258's function as "test dept", and an addition to the east is labeled "small pump assembly". The accompanying list of buildings from 1952, to which this map was attached, lists Building #258 as a test pit location.

By 1960, according to the review of the Cameron FIA plans, Building #258 addition to the east is labeled 258-A. The function Building #258 remained a testing facility, unchanged from 1933, and the eastern addition labeled 258-A is also labeled as testing (FIA 698-A, 1960).

No additional information was found concerning Building #258's use between 1960 and its demolition in the early 1990's.

H.259 Building #259

Building #259, a 2-story office building, was built between 1922 and 1933. It was located to the northwest of Building #252 and about 30 feet due west of Erecting Building Lean-To (later known as Building #258) (FIA 1180, 1933).

Between 1933 and 1960, Building #259 was expanded to the western wall of Building #258. Its function in 1960 was as office space (FIA 698-A, 1960).

No additional information was found concerning Building #259's use between 1960 and its demolition in the early 1990's.

H.260 Building #260

Between 1922 and 1933 a new garage was constructed about 150 feet to the west of the Erecting Building (Building #257) and was later numbered Building #260. Building #260 appears on the 1933 and 1960 FIA maps and is noted as a garage in both locations. Building #260 was demolished between 1966 and 1974.

H.261 Building #261

Building #261 appears to have begun as a series of three sheds west of Building #252, which housed storage, heat treating activities, and casting and cleaning activities. By 1940, Building #261 (an apparent consolidation of the three former sheds) had three wings labeled A, B, and C which joined it to Building #252, and it had been expanded to a brass casting shed to its north, which became numbered Building #262 (Map # MD 950, 1940). It is assumed that soon after the 1940, Building #261 was considered the entire complex of four former sheds, as it is shown on the 1960 FIA map.

The 1960 FIA map identifies Building #261 as having had floors of concrete and roofs of asbestos board. The following operations were performed within Building #261: bar storage, castings storage or

staging, pump parts staging or storage, administrative and records storage, and metal parts storage, acetylene torch tempering, cam grinding, and tool brazing. A one-story building or addition running east-to-west on the southern wall of Building #261 was for bar stock storage and cutting, and was apparently also considered part of Building #261 (FIA 698-A, 1960).

No additional information was found to concerning this Building #261's use between 1960 and its demolition around 1990.

H.262 Building #262

The Cameron facility's first Building #262 was a brass casting shed west of Building #252 (Main Building). Sometime in the early 1940s, an extension to Building #261 linked Building #261 with the original Building #262, and the resultant larger building was called Building #261 (Map #MD 950, 1933; Map #1180, 1933)

By the mid-1950s another complex of buildings (later designated Building #262 was located immediately to the west of Building #261. This complex of buildings was built upon, and apparently replaced, an outdoor storage area west of Building #261. The complex started as a single building near the northwestern corner of Building #261 around 1952 (aerial photography, untitled 1952 map). The original building located near the northwestern corner of the Building #261 complex, housed office space, a paint vault, and centrifugal pump parts storage. Two additions were added to the western side of Building #262 in the 1950's to link the two original buildings into one building complex. The 1953 addition contained: steel and metal parts storage. The 1954 addition housed a battery charging area, metal parts storage, casting and pump parts storage, and administrative and records areas (FIA 698-A, 1960).

No additional information was found concerning Building #262's use between 1960 and its demolition around 1990.

H.263 Building #263

Prior to 1933 a Gas Meter House (later called Building #263) was built about 150 feet south of the new garage (Building #260) and 25 feet south of the gas meter pit pre-dating 1922 (FIA 1180, 1933).

In 1960 Building #263 (the gas meter house) on the northwestern side of the Cameron site was still present (FIA 698-A, 1960).

No additional information was found concerning Building #263's use between 1960 and its demolition around 1990.

H.264 Building #264

Between 1974 and 1977, and a paint/oil storage building (Building #264) was constructed east of Building #253, according to general site maps and aerials reviewed. It was also demolished in the early 1990's.

H.MISC Un-numbered Cameron Sheds

Sometime between 1911 and 1922 a number of smaller buildings appeared on the Cameron site based on the FIA Plan for 1922. Due west of Building #252's iron casting storage house was a shed containing a chip room and sandblast room. (Chipping is the process of removing burs and other protrusions by grinding, sand blasting, or other abrasive methods.) Southwest of that shed was a small castings storage shed. North of that storage shed, west of Building #252 and located along the railroad tracks was a scrap bin. North of the scrap bin was a pump house. Exterior storage of iron castings and lumber was located south of Building #252 (Main Building). The eastern wall of Building 252 was devoid of out buildings. Immediately north of the garage (Building #253 prior to the 1950's) there was a shed with unknown contents. West of the garage (Building #253 prior to the 1950's), straddling railroad tracks were two storage sheds. Shed #1, which was 90 feet east of the garage across a set of tracks, contained castings. Shed #2, which was closer to the garage (about 55 feet east), contained lumber.

Along the western wall of Building #252 a series of exterior sheds existed in 1933. It is possible that some of these sheds existed in 1922. The Bar Steel Storage Shed appears to be of roughly the same dimensions and location as the 1922 Scrap Bin, and the pump house seems to be the same building as existed in 1922, but by 1933 it was out of commission. The sandblast and chip room shed and the small castings storage shed either were altered or destroyed and replaced with a new series of sheds. This series of sheds included:

- A stand-alone Brass Casting Shed (20 ft by 105 ft) with concrete floors about 225 feet south of the southwestern corner of the Erecting Building (which became Building #262, then part of Building #261).

- A 12 ft by 12 ft saw shed for steel cutting about 5-10 feet northeast of the southern most point of the Brass Casting Shed (which appears to have been destroyed by the 1950's).

- A long shed unit containing two adjoining sheds with concrete floors. The southernmost shed (20 ft by 185 ft) stored castings and a heat treating room. The northernmost shed that faced the brass casting shed (20 ft by 65 ft) was a casting cleaning shed (Which became part of Building #261). (1933 1080)

South of Building #252, the sheds depicted in the 1922 FIA map that had been near the older garage (Building #253 prior to the 1950's had disappeared. A new shed with cinder floors was located about 50 feet south of Building #252 between the two sets of tracks. Lumber and iron castings were still located in this outdoor area. (1933 1080)

Several items are not shown on either the 1922 or the 1933 FIA plan. According to a proposed layout from 1927 (MD 436) a paint storage shed, storage bin, and a pickling shed were located on the northwest side of Building #252. This storage area and the pickling shed were located to the south of the Brass Storage Shed (1927 MD 436). It is not known whether the proposed layout was actually constructed.

The 1960 FIA plans depict a small exterior oxygen and acetylene storage shed located at the southwestern corner of Building #251-A and a scrap pad about 25 feet by 250 feet along Building #252's eastern wall about 50 feet north of Building #251.